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Some Public Health Implications of the Missouri Valley Development Program*

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THE close interrelationship of health and environment has long been recognized by the public health profession, and particularly by those working in the field of sanitation. Few of us, however, are aware of the many factors of environment which may directly or indirectly influence health, and which are associated with the development and conservation of our land and water resources. These public health implications are not limited to any specific area but may be found wherever extensive development works have been or are being carried on. They were encountered in the Tennessee Valley, where at an early date a public health section was established as an integral part of the development organization. The Missouri Valley is little different from other areas of the country except that its development program is more intensive.

Even with the limited time available for this presentation, it seems essential to describe briefly the development and administration of the program in the Missouri Basin. The valley consists of all or parts of ten states comprising about 18 per cent of the land area of the United States, and is properly termed the nation's "bread basket." Yet, in the drought years of the 1930's, agricultural productivity was not sufficient to make it self sustaining. Paradoxically, in those same drought years, some sections of the valley suffered destructive floods. The one on the Republican River in 1935 for example took a toll of 105 lives.

Thus, two basic problems, flood and drought, confront the seven million inhabitants of the valley and exert considerable influence upon the economy of the region. The Congress, through Public Law 534, has authorized a far-reaching plan for the conservation and development of the valley's land and water resources in the interest of flood control, navigation, irrigation, hydroelectric power, soil conservation, recreation, fish

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and wildlife conservation, and water supply and sanitation. Congress also established the administrative pattern by which this program is governed.

The Missouri Basin Inter-Agency Committee is composed of one representative of each of the five major participating federal agencies and five governors, representing the ten Missouri Basin states. It was established to provide a channel through which the field representatives of the participating federal and state agencies may coördinate their activities in the preparation of reports and in the planning and execution of project works.

The gigantic engineering plan calls for the completion of 138 reservoirs with a total water storage capacity in excess of 110 million acre-feet; the annual production of 11 billion kilowatt hours of hydroelectric power; supplemental water for approximately 1½ million acres of irrigated lands, for which adequate water is not now available; the development of 5 million additional acres of irrigated lands; recreational facilities at numerous reservoirs; and an extensive program of soil conservation. The development, already 10 per cent completed, will ultimately cost in excess of 8 billion dollars.[1]

Resource development activities of the magnitude contemplated will inevitably result in change of environment particularly in local areas around project works. Maximum utilization of the development program for the improvement of environment as related to health is the objective of the official health agencies. To reach this objective, active consideration of projects in their planning stages is a basic essential. The administrative plan of the development program for the Missouri Valley makes this extremely difficult, inasmuch as the major interest of those directing the undertaking may to a great extent be predetermined or otherwise restricted by the specific authority and responsibility of the few federal agencies receiving appropriations for this work. As a result, public health must compete with other interests of the development program, largely on a basis of anticipated monetary benefits. As we all well realize, it is extremely difficult to evaluate in terms of dollars the benefits of improved environment.

The value of flood control and other hydraulic structures for pollution abatement has long been recognzied. Pollution can be alleviated by increasing stream flows during critical periods or, in other words, by increasing the quantity of dilution water. Generally, the release will not be made specifically for the purpose of pollution abatement. On the debit side is the probability that at some locations low flow may be decreased, or the flow period prolonged.

A sustained minimum flow is of significant importance in the development of treatment works because a definite flow figure is available as a basis of design. Additional small volumes of water added to normal low flows will in many instances do much to render unnecessary highly refined and costly treatment, or to alleviate the adverse effect on other water uses where such refinements are not made. An unusual benefit attributed to some of the hydraulic structures is the additional oxygen imparted to the released waters. This is important in those parts of the basin where ice coverage predominates for long periods of time. Nuisance conditions sometimes develop near sewer outfalls from sludge deposits resulting from low stream velocities. Increased flows, and the concurrent increased velocity, may be expected to alleviate these nuisance conditions.

Again on the debit side is the fact that sewer outfalls may be located in the quiescent waters of an impoundment where formerly there was a flowing stream. A significant reduction in the capacity of the stream to assimilate

pollution may result, with a corresponding increase in treatment requirements and costs. In these instances, pollution from outfall sewers may, under proper although admittedly unusual conditions, even travel upstream thereby jeopardizing a source of water supply.

The lower Missouri River is heavily polluted with the domestic and industrial wastes from the metropolitan areas located in and above this portion of the basin. Records of municipal water departments show average coliform concentrations far in excess of accepted safe maximum limits. The filling of upstream reservoirs during winter months for later utilization in irrigation, navigation, and for other purposes, may possibly reduce normal winter low flows so that existing pollution will in the future be of increased significance.

Reservoirs and regulated stream flows hold promise, however, for the improvement of public water supplies. This is important because in many areas a source of supply ample in quantity and satisfactory in quality does not exist. It is not uncommon in the Basin to find public systems dispensing water having such characteristics as hardness above 900 p.p.m., sulphates above 1,000 p.p.m., chlorides above 500 p.p.m., total solids above 2,000 p.p.m., or fluorides above 5 p.p.m. Impoundments and sustained stream flows, together with the network of irrigation canals and laterals, will ultimately bring an adequate and more satisfactory supply of water to several of these communities.

The source of water supply for some large communities, after all feasible development of water resources has been accomplished, is sufficient only for current needs and does not provide for an increased supply to meet the future requirements of an expanded industrial and domestic economy. Denver and Colorado Springs are two municipalities gravely concerned in this problem. The transmountain diversion of water from the western to the eastern slope of the Rockies is planned primarily for purposes of hydroelectric power and irrigation, but will allocate water to both communities ample for all anticipated future needs.

Inadequate water supply has already limited development in the Cheyenne, Red, and James River Valleys, and several communities which depend upon wells have been faced with the necessity of searching for new water sources because of lowering ground water levels. The development plan will permit recharging ground water storage in these areas by increasing stream flows, restoring lakes which have gradually disappeared during this century, and beneficially influencing water tables through percolation of water from canals, irrigated farms, and small stream channels.

Extremely high turbidity and accompanying problems of silt removal have plagued many water plants along the "Big Muddy" and its tributaries since these systems were first developed. The construction of 5 mammoth impoundments on the main stem, and smaller structures on important tributaries, will do much to reduce the silt load. Improved farming and soil conservation practices resulting from that portion of the development program carried on by the Department of Agriculture are expected further to reduce silt pollution.

As a result of the two forces, it is predicted that upon completion of the program the Missouri River will be a relatively clear stream over its lower reaches. The net effect of this marked change, however, is not known at this time. Missouri River water after clarification is ideal for algae production in that it is rather highly mineralized and is enriched by runoff from fertilized farm land. The development of irrigation and accompanying increase in the use of chemical fertilizers will, because

of the return flow from irrigation, further enrich these waters. Exposed as the water will be to high temperatures and long periods of sunshine prevailing during the summer months, severe algae problems are expected to develop.

Regulation of stream flow may be accompanied by improved water characteristics. A general reduction in hardness is afforded through the storage of snow melt and flood run-off water for release during periods of low flow. A reduction in water temperature may also result from the reservoir release and the concurrent increase in stream velocity.

Rural water supply, traditionally from ground sources, generally presents a special problem over a great portion of the basin. That which is available is very often undependable as to quantity and undesirable as to chemical and physical quality. During drought periods these underground supplies are soon depleted, and even stock water becomes a matter of extreme importance. The recharge of ground waters resulting from irrigation, canals, impoundments, and sustained stream flows should do much to alleviate this problem. In specific areas it is anticipated that domestic water will be taken directly from irrigation ditches. Attention has already been directed toward the need for an effective and reliable low-cost system for purification of this water and its safe storage.

The use of polluted water for irrigation is also of public health significance. However, there appears insufficient conclusive epidemiological evidence to incriminate vegetables irrigated with polluted waters as vehicles of enteric disease transmission. The need of an established standard of bacteriological quality for irrigation waters is acutely realized by health officials in the Basin. Current studies sponsored by the Research Grants Division, of the National Institutes of Health, are related to this problem. There remains, however, a distinct need for a comprehensive study of the epidemiological significance of the use of polluted waters in the irrigation of certain food crops and the establishment of quality standards for irrigation waters necessary to insure reasonable protection to the consuming public.

The creation of numerous impoundments, and especially the development of extensive areas of irrigation, will increase to a considerable degree the population of mosquito vectors of disease, unless proper preventive action is taken.

Two important mosquito-borne diseases to be considered are encephalomyelitis and malaria. At this time the control of these diseases is largely based upon the control of the vectors. If ideal mosquito breeding conditions are created, the control of these diseases may prove to be an extremely complicated and costly operation. On the other hand, as has been amply demonstrated, wherever proper preventive actions have been taken to minimize the creation of mosquito breeding situations, control operations have been simplified or unnecessary. This is especially significant in the case of encephalomyelitis because of its widespread endemicity in the Basin and the complexity of vector control operations.

In addition to the hazards of disease transmission, another factor which should be borne in mind is the creation of mosquito nuisances which would be unfavorable to recreational development and human welfare.

Public health services in the Missouri Basin are minimal; local health departments exist in only a few metropolitan areas, and state staffs are extremely limited. The large construction projects of the development plan, practically without exception, are located in rural areas, and most of the construction workers are transients. Health problems are quite similar to those encountered during the war period in the construction of

military establishments in rural areas. There is definite need for public health counselling with the construction agency relative to water supply, sewerage, housing, milk and food sanitation, and other factors of environment, and for public health supervision of these and other facilities provided through local entrepreneurship for construction workers and tourists attracted by the construction activity. An example has been reported where 40 housing units converted from grain storage bins, and served by three insanitary privies and an unsafe water supply, are being used by the families of construction workers.

Local units of government have not yet actively supported adequate health services in construction areas. In part, their attitude has been that the federal government and not the locality is responsible for the project. However, the truth is that the financing of adequate health services for these areas would be extremely difficult as the migrant population is sometimes several times that of the normal population. State legislatures have not yet directly supported programs to control conditions in these areas. Neither has a way been found to render federal assistance to these areas in support of health services. Some form of assistance, comparable in principle to the war emergency health and sanitation functions, seems necessary to enlist state and local support of this phase of the project activity, and appears entirely consistent with the role assumed by the federal government as sponsor of the undertaking.

The preceding discussion has dealt with the more tangible of the public health aspects of the development plan. Other aspects such as psychological well-being, although admittedly difficult to evaluate, are worthy of mention. Irrigated farming is conducive to security and stability of income through elimination of the important factor of inadequate moisture. Stability and security influence health in its broader concept. With irrigation, farm operators can raise vegetable gardens which, with canning and cold storage facilities, are improving the normal diet now prevailing at many farmsteads in the more arid portions of the Basin.

One is impressed with the lack of trees and shrubbery around the homes and the apparent drabness of existence under these conditions. After irrigation is developed however an abundance of shrubbery and flowers usually appears around the houses. We jokingly speak of this as chlorophyll therapy, but I am sure that such therapy has many supporters among the housewives.

These and comparable factors must add much to the pleasures of living in the area; moreover they appear to have a marked influence on the psychological health of the residents. There is indication that irrigated areas are more attractive as a location for medical practitioners than are other rural communities in the more arid portions of the Basin. Recreational facilities in connection with the numerous impoundments, improved hunting, fishing, and other outdoor activities will be of interest to many. Healthful recreation can do much to safeguard physical, mental, and moral health, particularly for the younger generation. As has been well stated by the Committee on the Hygiene of Housing[2]: "Opportunities for physical exercise and recreation, for both children and adults, are essential to a sense of organic well-being and the enjoyment of mental health."

Such improved factors of physiological and psychological health as security, stable income, improved diet, and healthful recreation should permit the individual to increase the span of his productive ability and to increase his unit time production. The resultant value, could it properly be evaluated, would be high.

The Missouri River Development

Plan, while conceived and economically justified in terms of physical resources alone, holds promise for the provision of a more healthful environment as a secondary benefit. It is important that no significant public health hazard be incorporated in any unit of the development plan, and that there be no cause for criticism of the federal government due to inadequate consideration of public health matters. If proposals can be properly considered so that health hazards are not incorporated in project structures, and if in planning, maximum feasible improvement of environment is included as an objective, much can be accomplished to develop further the human resources of the valley as an added benefit to the development of the physical resources of the area.

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Nuclear Cancer Research Program

A cancer research program has been set up by the Medical Division of the Oak Ridge Institute of Nuclear Studies. A small research staff, a 30 bed clinical unit, laboratories, treatment rooms, and radiation storage facilities have been made available. The program is designed to study treatment of neoplasms by radiation from radioactive isotopes. Through the coöperation of southern medical schools, patients treated will be selected by referral only from staff members of the participating medical schools in 13 southern states. In the referrals they will be guided by the principle that no patient will be considered for admission if the neoplastic condition is amenable to effective surgical or roentgen therapy. Only two or three types of neoplasms will be under study at any one time. The study is being financed by the Atomic Energy Commission and is under the supervision of a board of medical consultants made up of 6 professors in medical schools in some of the coöperating states.

Ducks and Shellfish Sanitation*

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IT has generally been accepted in the past, that pollution of animal origin was not so potentially dangerous as pollution of human origin. Recent studies of the relation of pathogenic to coliform organisms in duck polluted waters would seem to require some revision in this concept. These studies reported for the first time in this paper, indicate that duck pollution is a very definite public health factor in shellfish sanitation.

The chief problems of shellfish sanitation consist of: (1) The determination of safe production areas from which shellfish may be taken for food without danger to the public health; (2) the inspection of plants opening and packing shellfish to assure the continued safety of the product being shipped. The investigations reported herein deal entirely with the first of these problems, and the studies made in one of the many areas of Long Island for the purpose of deciding its potential safety as a source of production. This area is at the easterly end of Long Island and is known as the Peconic River, Reeves Bay, and Flanders Bay area. It consists of some 3,500 acres from which some oysters and large quantities of hard clams are produced annually.

The two main factors considered in a study of this type are: (1) the sanitary survey of the watershed, (2) the results of laboratory examination of samples of water for the presence of pollution organisms.

THE SANITARY SURVEY

The Peconic River is about 12 miles long with approximately 40 square miles of watershed. The average daily run-off of fresh water from the watershed is estimated at 40 m.g.d. The watershed is sparsely settled and is mostly farm and woodlands. The river is a fresh water stream above the village of Riverhead. Below Riverhead for about 2 miles it is a tidal estuary finally discharging into Flanders Bay. Flanders Bay and Reeves Bay and the tidal estuaries tributary thereto are subjected twice a day to the influence of some 4,500 m.g. of clean salt water due to the rise and fall of about 4 feet of tide entering the bays from the east.

The tidal areas are subjected to a few minor sources of human pollution in and around Riverhead. The village of Riverhead has a public sewerage system and treatment plant and discharges effluent about halfway between the village and the mouth of the river. The treatment plant was placed in operation in 1938. It is an activated sludge plant of modern design and adequate capacity. Samples collected at various times indicate that it is well operated. Typical results of operation indicate 96 per cent removal of the suspended solids (raw 616 p.p.m.) 90 per cent removal of B.O.D. (raw 500 p.p.m.) and effective

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chlorination, the effluent showing a maximum MPN per 100 ml. of 330.

The river also receives the untreated wastes from a laundry at Riverhead. The discharge of these wastes may have some slight effect on the river, but serious damage from this source has not been demonstrated by laboratory results. Sources of human or industrial pollution in this entire drainage area, therefore, are considered to be insignificant.

The greatest source of pollution in this area, is the numerous duck farms located at various points along the river and near its entrance to the bay. These ducks are of the White Pekin variety and are grown in large numbers during the spring, summer and early fall. Only a relatively few ducks are kept on the farms for breeding purposes during the winter months. A survey of duck farms made in 1937 indicated some 21 farms in this area producing more than one million ducks annually. Production has increased considerably since that time and it is estimated that some two million are now grown annually.

Years ago, the duck pens extended directly into the tidal streams. Duck diseases were transmitted from one farm to another to a serious extent under these conditions. In recent years, in order to isolate individual farms and eliminate the spread of disease from one farm to another, most of the farms now have separated their pens from the main streams by the building of dikes. The water in the duck pens is usually obtained by pumping from wells. The overflow from the pens, however, is discharged into the streams. The quantity of water flowing from the pens may vary considerably due to tidal actions, rainfall, etc. On one medium size farm the average discharge appears to be in the neighborhood of some 500 to 900 g.p.m.

The character of the water discharged from the pens also varies considerably depending upon rainfall, the number of ducks in the pens, and their activities. Analysis of the overflow from these farms indicates suspended solids varying from 80 p.p.m. to more than 1,800 p.p.m. and B.O.D. values of from 60 p.p.m. to 380 p.p.m. Coliform organisms are present in the order of a MPN of 10,000,000 or more per 100 ml. It would appear that near the mouth of the Peconic River, during the summertime, the waters receive duck farm wastes equivalent to the discharge of raw sewage from a village of more than 20,000 persons.

LABORATORY RESULTS

Samples of water have been collected from this area many times and under various conditions since 1937. Fourteen separate surveys have been made during these studies. It is the usual procedure to collect one sample at each quarter stage of the tide, making a total of four samples at each sampling station. These are examined for coliform organisms and total bacteria.

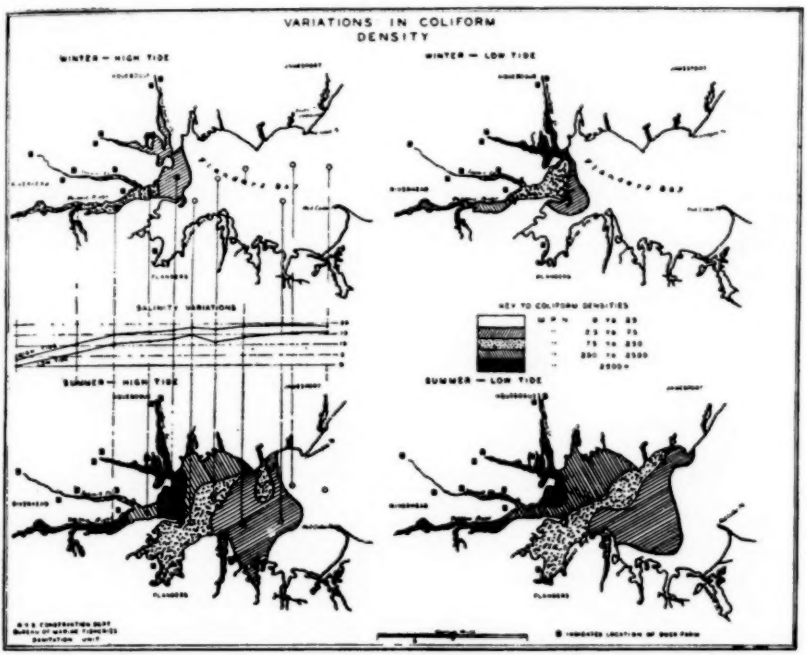
Chart 1 shows the seasonal and tidal variations in coliform densities throughout this area and is based on the composite results of samples collected over a 12 year period. The vast extent of polluted waters during the summer months is evident from this chart and is considered to be the direct result of the increased duck population during this period.

This chart also shows typical salinity variations at high and low tide throughout this area starting with fresh water at Riverhead and approaching seawater conditions near the middle of the bay. The locations of the various duck farms are also shown.

INTERPRETATION OF THE DATA

It has been shown that this shellfish area contains excessive numbers of coliform organisms during the summer months and that these coliforms are of animal rather than human origin. If the coliforms found in this area were of

CHART 1



human origin then a pathogen coliform ratio would be expected to exist. In this case the pathogens would be assumed to be of the typhoid group and would be present in sufficient numbers to constitute a definite menace to the public health. This would warrant closing this area to the taking of shellfish. However, the coliforms present are definitely known to be of animal rather than human origin, originating from the duck population; therefore, the public health significance of these coliforms becomes questionable unless it can be demonstrated that a similar pathogen coliform ratio exists. If such a relationship can be demonstrated, then the presence of these coliforms—i.e., of duck origin—also indicates a definite public health menace. Under such circumstances it becomes necessary to close the area to the taking of shellfish.

PATHOGENS PRESENT IN DUCK WASTES

The literature is quite extensive on the presence of members of the *Salmonella* group in ducks and duck droppings. Edwards[1] reports on 56 outbreaks of salmonellosis in ducks, from which 13 types were isolated. All of these types are recorded by Seligman[2] and Edwards,[3] as having been associated with outbreaks of salmonellosis in humans.

Pathogenicity of *Salmonella* from ducks is more directly demonstrated by Mallam,[4] Scott,[5] and Snapper,[6] who cite cases of human salmonellosis resulting from the ingestion of duck eggs or food prepared from them.

Of particular significance from the standpoint of pollution is the method of infection of these eggs. Both Mallam and Scott agree that the eggs become infected either by introduction of con-

TABLE 1

Incidence of Salmonella Types Isolated in Infections of Man and Ducks

Type	Man Edwards [1]			Man Seligman [2]			Ducks Edwards [3]
	No. Outbreaks	No. Cases	No. Fatalities	No. Outbreaks	No. Cases	No. Fatalities	No. Outbreaks
Total—All Types	1677	2949	56	941	1107	57	56
S. Typhi-murium	357	469	12	307	356	22	32
S. derby	49	126	1	34	37	1	1
S. bredeny	16	34	0	4	4	0	2
S. panama	73	124	4	46	57	1	1
S. give	36	75	0	17	17	0	2
S. anatum	64	165	1	49	64	1	8
S. meleagridis	16	43	0	13	13	0	0

TABLE 2

Isolations of Salmonella from Duck Farms and Tributary Waters

Date	Station	Coliform MPN/100 ml.	Salmonella Isolated	Volume of Sample tested—ml.
5/10/49	Farm A	9,300,000	*S. anatum, S. typhi-murium*	10
	Farm B	9,300.000	*S. meleagridis, S. bredeny*	100 & 10
	Farm C	930,000	*S. typhi-murium*	10
	Farm D	15,000,000	*S. typhi-murium*	10
	Farm E	2,400,000	none isolated	100 & 10
Meetinghouse Creek				
8/2/48	Sta. 5.1	4,600,000	*S. bredeny, S. give*	10
6/8/48	Sta. 5.2	2,400,000	*S. bredeny*	10
6/13/48	Sta. 5.2	930,000	*S. bredeny*	100
8/2/48	Sta. 5.2	4,600,000	*S. bredeny*	10
9/27/48	Sta. 5.2	2,400,000	*S. bredeny*	10
7/12/48	Sta. 5.2A	930,000	*S. typhi-murium, S. bredeny*	10
Sawmill Creek				
9/27/48	Sta. 7.2	11,000,000	*S. typhi-murium*	10
	Sta. 7.1	460,000	*S. typhi-murium*	10
Flanders Bay				
7/12/48	*Water* Sta. 4.1	4,600	none isolated	100 & 10
7/12/48	*Oysters* Sta. 4.1	24,000+	*S. typhi-murium*	10
9/27/48	*Water* Sta. 4.1	3.6	none isolated	100 & 10
9/27/48	*Oysters* Sta. 4.1	330	none isolated	100 & 10

taminated material into the oviduct during copulation, or by direct contact of the egg with contaminated fecal material on the ground. Thus, the prime origin of *Salmonella* in eggs is *fecal material*. These observations are also confirmed by Solowey,[7] who found that eggs with adhering fecal material were infected with *Salmonella* more often than clean eggs. The infection could not be attributed to contamination during the opening since pre-washing in heavily chlorinated water, or wet or dry scrubbing did not reduce the incidence of infected eggs.

Hilbert[8] reports occasional *S. anatum* infections among Long Island ducks; Hansen[9] reports *Salmonella* infections as great as 5 per cent in European ducks; and Clarenberg[10] reports at least 1 per cent infections among ducks in other parts of this country. These reports indicate that it is quite common for flocks of ducks to be heavily infected with *Salmonella* and that they should be included in the statement of Edwards[1] that "birds constitute the greatest reservoir of paratyphoid infection among domestic animals."

In order to demonstrate the presence of pathogens in the wastes from the Long Island duck farms and to show

the possibility of the transmission of these pathogens from the farms through the shellfish waters and actually to the shellfish, special samples were collected and examined for the coliform and *Salmonella* groups. The results obtained appear in Table 2.

These special samples were collected principally from Meetinghouse Creek and Saw Mill Creek for three reasons; (1) because of the absence of any significant amount of human pollution; (2) because of the presence of a great amount of duck pollution; and (3) because of the nearness of these creeks to productive shellfish grounds.

It will be noted from Table 2 that viable pathogenic types of *Salmonella* were isolated from the discharges of duck farms and the waters immediately adjacent to these farms. It was also possible to recover *Salmonella* at least ¼ mile away from the nearest duck farm. Perhaps the most significant result in this table is the recovery of one type of *Salmonella* from a sample of oysters taken from a private oyster bed in Flanders Bay, which, during the winter months is considered to be of satisfactory sanitary quality.

These results appear to establish beyond any doubt a definite relationship of pathogens to coliforms when the source of such coliforms is of duck origin. Therefore, the presence of excessive coliform organisms of duck farm origin must be considered as a public health menace and areas polluted by duck farms must be closed to the taking of shellfish following the same administrative procedures that are used when the source of such coliform is of human origin.

ABATEMENT OF POLLUTION BY DUCK FARMS

It has been mentioned previously, that in order to control diseases, the modern duck farmer has isolated his farm from the adjacent stream by means of dikes and has supplied the duck pens with clean, fresh water, usually obtained from driven wells or upland reservoirs. The water flows from pen to pen and finally discharges through an opening in the dike, usually a tide gate. Thus, the first stage of abatement, namely isolation and consolidation of the wastes, has been accomplished on the modern farm.

Field and laboratory experiments have been conducted at one such farm to determine the characteristics of the wastes with a view to applying the principles of domestic sewage treatment. These experiments have indicated that the solids are rapid settling, the greatest part of the settleable solids being removed within 5 to 30 minutes.

Field experiments indicate the feasibility of plain settling followed by chlorination as the method of treatment of these wastes. The experiments demonstrated that from 50 per cent to 93 per cent of the suspended solids could be removed in one hour's detention. The effluent then was in satisfactory condition for chlorination. In one experiment, the coliform MPN of the effluent was reduced from 46,000,000 to 430 by the application of 10 p.p.m. of chlorine, leaving a residual of 0.7 p.p.m. after 15 minutes contact.

CONCLUSIONS

In conclusion, it appears from the studies made of duck farm pollution of shellfish areas that:

1. Pathogenic organisms are present in the wastes discharged or flowing from duck farms.
2. Such organisms—potentially dangerous to man—have been recovered in shellfish taken from water polluted by duck farms.
3. Public health agencies in charge of shellfish sanitation must give due consideration to the presence of excessive numbers of coliform organisms originating from duck farms.
4. The elimination of this pollution by

reasonable and economical means appears possible and is necessary in the public interest.

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New Isotope Laboratory

The National Institutes of Health of the U. S. Public Health Service has established an Isotope Laboratory for research involving radioisotopes, one of the few radioisotope laboratories in America designed solely for medical research. The Laboratory is prepared for immediate experimentation in a wide variety of fields. Among the projects under way are:

1. A study with radioactive iodine to determine how the thyroid gland function depends on dietary intake for both normal and thyroid tumor tissue.
2. A study on the biological effects of alpha particles from radon, and a comparison of these effects with other types of radiation, especially x-rays.
3. A study with radioactive phosphorus involving the metabolism of various phosphorus compounds.
4. A study with carbon-14 to determine the distribution of chemotherapeutic agents thought to have value in the treatment of cancer.

Observations on the Transmission of Salmonellosis in Man*

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SALMONELLOSIS, according to modern nomenclature, is a malady caused by any of the numerous members of the genus *Salmonella*. This genus includes the typhoid bacillus, as well as more than 150 types of organisms which, for the sake of convenience, may be referred to as paratyphoid bacilli. In the present report the term salmonellosis is employed to connote an infection caused by these microörganisms, with the exception of the typhoid bacillus. The advances made in our knowledge of the mode of transmission, prevention by sanitary methods, active immunization, and chemotherapy of typhoid fever are distinctly more far-reaching than those regarding paratyphoid infections.

In the first place, typhoid fever originates, directly or indirectly, from man only, whereas paratyphoid infections may be traced to animals as well. Active immunization with a potent vaccine against typhoid fever is very effective, whereas immunization against paratyphoid infection, largely because of the numerous antigenic types of salmonellae encountered, is of limited value only. Finally, from preliminary data available, it is apparent that the new antibiotic chloromycetin is of distinct value in the therapy of typhoid fever but far less effective in the treatment of experimental salmonella infections of animals and of the human disease. Bearing these facts in mind, every effort should be made to prevent salmonella infection in man. To this end, an understanding of the mode of transmission is indispensible. On numerous occasions, larger and smaller outbreaks of salmonellosis have been traced to carriers and to contaminated water or food. On the other hand, the origin of the infection in an extraordinary large number of sporadic cases has remained obscure. In this report, data on man-to-man transmission of salmonellae are presented, and the implications of the observations are briefly discussed from the public health point of view.

THE PROBLEM OF THE INTRAUTERINE TRANSPLACENTAL TRANSMISSION OF SALMONELLOSIS

Although the possibility of the hematogenous infection of the fetus, resulting in salmonellosis of the newly-born, was considered as a possibility by several authors, including Abramson,[1] such an occurrence must be extremely rare. As a matter of fact, the placenta can be an effective barrier, as the bacteriological data of *Salmonella choleraesuis* bacteremia during pregnancy studied by us indicate. The particular patient in question harbored this organism in the blood for at least 6 days prior to delivery and

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the blood culture was still positive on the day of the birth of the child. Although bacteriological examination of the placenta revealed the presence of numerous paratyphoid bacilli, blood and mouth cultures of the baby were sterile. It is evident, then, that salmonella bacteremia during pregnancy does not necessarily result in infection of the fetus.

TRANSMISSION OF SALMONELLOSIS DURING DELIVERY

In view of the well known susceptibility of young children and animals to salmonellosis, it is not surprising to find a considerable number of outbreaks of this disease in nurseries and among flocks of recently born animals. In infants, the infection may result from contact, directly or indirectly, with attendants, either the mother, nurses, or physicians. An illustrative example is the outbreak of *Salmonella typhimurium* infection involving 17 cases, reported by Abramson.[1] This epidemic originated from one of the mothers of the maternity hospital, spread, probably through contaminated bedpans, to two other mothers, affected 14 infants, some of them becoming infected from a nurse who had become infected herself, and involved a member of the medical house-staff. In this and similar outbreaks the precise mode of transmission of the disease from mother to baby remains undetermined.

That salmonella may be transmitted during delivery is illustrated by the following unusual observation. Mrs. M. was admitted to the maternity division of this hospital. According to the obstetrical history she was not suffering and had not suffered from any intestinal disorder. A premature infant was delivered after 2½ hours of labor, 3½ hours following rupture of the membranes at home. Because of the prematurity, the infant was immediately taken to the premature nursery and did not have any further contact with the mother during hospitalization. On the third day of life the infant, weighing 4 lbs. 3 oz., developed diarrhea and on the fifth day of life the temperature, which had been normal, suddenly reached 104° F. A blood culture taken at that time revealed the presence of two colonies per ml. of blood of *S. oranienburg*. On the same day the paratyphoid bacillus was recovered also from the feces. Following supportive treatment and chemotherapy with streptomycin, the child was discharged on the 38th day of life in good condition. The attempt to isolate salmonella from the attendants (nurses, etc.) at the premature nursery failed. However, the same type of paratyphoid bacillus was easily recovered from the feces of the mother. A more careful history taken subsequent to the diagnosis of the disease revealed that the mother had had very mild diarrhea one week prior to delivery.

It is evident then that the infection of the new-born baby must have taken place during the actual delivery, since it is most unlikely that the mother suffered from salmonella bacteremia. The presence of this child, first in the premature nursery and then in the isolation ward, resulted in cross-infection of two infants, in spite of all precautions which were carried out at that time. It is interesting to note that the development of diarrhea preceded the rise in temperature and that numerous paratyphoid bacilli were present in the feces on the first day of elevated temperature. It is obvious that the child could have served as a source of cross-infection on the very first day of clinical manifestations, and it may be assumed that the bacteremia was the result of the intestinal infection and not, as in typhoid fever, its source.

This experience of transmission of *S. oranienburg* during delivery of a premature infant parallels the observation of Watt and Carlton[2] on a similar mode

of infection of a new-born premature infant with *S. typhimurium*. The case of Watt and Carlton differed from our own, inasmuch as the mother actually suffered from diarrheal disease during delivery and, 6 hours after the birth of the infant, her temperature rose to 105°. In this instance, too, salmonellosis was introduced into the premature nursery, involving 4 other children. Based on these observations it is evident that careful histories must be taken of mothers whose babies are to be placed in a nursery, particularly nurseries for premature infants, if cross-infection originating from an infant exposed to an enteric pathogen during delivery is to be avoided. In this connection it is interesting to note that, according to Franklin and Loeb,[3] 24 per cent of infants at time of delivery harbored *Escherichia coli* on the eyelids immediately after birth.

THE POSSIBLE DISSEMINATION OF SALMONELLA FROM THE RESPIRATORY TRACT

On two occasions, cross-infection was observed at this institution in spite of all possible precautions to prevent the dissemination of paratyphoid bacilli through feces or urine. The possibility was considered that salmonellae may be present in the respiratory tract and be spread like an air-borne infection. Recently, then, a study was commenced to determine whether or not in children, suffering from gastroenteritis or enterocolitis, the pathogenic agent is present in the nasopharynx or in the throat.

It was found that two patients, one suffering from acute enterocolitis complicated by bacteremia due to *S. oranienburg*, the other from gastroenteritis and bacteremia caused by *S. choleraesuis*, harbored the pathogen in both the nasopharynx and the throat. In fact, *S. oranienburg* was the predominant organism in the nasopharynx. It was this baby who served as a source of cross-infection of a premature child in the premature nursery and, following transfer, of another baby in the isolation ward. Both children developed salmonellosis following hospitalization for 4 weeks and 11 days, respectively. From these preliminary observations it may be tentatively concluded that an additional avenue of exit of salmonellae in patients clinically diagnosed as having enteric disease may be the upper respiratory tract. If this observation can be corroborated it may be advisable to take precautions not only against fecal spread but also against air-borne transmission of salmonellae.

THE SCOPE OF THE CONVALESCENT SALMONELLA CARRIER PROBLEM

Although reference is frequently made in the literature to both convalescent and permanent salmonella carriers as sources of infection, additional data on this problem are desirable. A study was undertaken, therefore, to determine the percentage of children who had recovered clinically from salmonellosis but still harbored the pathogen in the intestinal tract at the time of discharge from the hospital. In all, 43 patients were investigated. The type of salmonella was determined in each instance. Of these 43 cases, according to the last culture prior to discharge from the hospital, 26 still excreted the paratyphoid bacillus with the feces and only 17 did not. In addition, there were two adults who were carriers, following a very mild episode of salmonellosis and several children whose fecal specimens were sent to this laboratory for the etiological diagnosis of the disease. It is quite possible that the percentage of convalescent carriers may be even greater than the figures just cited here, had the criterion of the carrier state been based on more than one negative culture. The questions as to how long the excretion of paratyphoid bacilli in children continues and whether or not the return to their homes resulted in infection of contacts, cannot

be answered. It is evident, however, that every attempt should be made to lower the percentage of carriers on discharge from the hospital. As shown by Seligmann and associates,[4] streptomycin is of very limited usefulness in this respect. Whether or not aureomycin or chloromycetin will be more effective, remains to be seen. The results with chloromycetin in the treatment of experimental salmonella infections proved to be disappointing (Seligmann and Wassermann[5]). At this hospital two convalescent salmonella carriers were treated with large doses of aureomycin (500 mg. per kg. per 24 hours) and later with chloromycetin (500 mg. per kg. per 24 hours) for one week each but continued to excrete salmonellae with the feces. The search for a more effective method for the treatmnt of carriers must continue.

THE PROBLEM OF THE SPORADIC CASE

Without question, sporadic salmonellosis occurs much more frequently than is apparent from the statistics on cases reported to health departments. In part, this is due to the fact that bacteriological studies are frequently not carried out, particularly on mild and atypical sporadic cases. Furthermore, often the source of the infection remains unknown because of lack of epidemiological studies. Although it must be admitted that the search for the source in sporadic cases is frequently unsuccessful, attempts to trace the infection should be undertaken more often. To illustrate this point, the following observation may be briefly cited.

M. W. was admitted to the hospital with a diagnosis of acute appendicitis. Following the removal of the not-acutely inflamed appendix on the first day of hospitalization, the child developed diarrhea, and *Salmonella typhimurium* could be readily isolated from the feces. A careful history, then, revealed that the brother of the patient, two to three weeks before, had had diarrhea for one day. The feces of the brother was examined and the same type of salmonella was recovered without difficulty. If one is to obtain a more adequate appraisal of the magnitude of the salmonellosis problem more bacteriological and epidemiological studies must be undertaken.

SUMMARY AND CONCLUSIONS

Too frequently, the true nature of mild and atypical forms of salmonellosis remains unrecognized and, even when the etiological diagnosis has been established, the source and mode of transmission of the malady remains undetermined. The observations reported in this communication may aid in the elucidation of this complex and important problem.

1. Salmonellosis may be transmitted during delivery from a mother suffering from diarrheal disease or, as in the case presented here, from a mother who had become a convalescent carrier.

2. The admission into a nursery of an infant thus exposed may result in cross-infection of exposed individuals. This sequence of events may be prevented, if the admission of infants born to mothers who present evidence or give a history of recent diarrheal disease is deferred.

3. Salmonellae may be present in the nasopharynx and throat of children suffering from salmonellosis. It is possible that in these instances the disease may be spread like an air-borne infection. Consideration should be given to the prevention of dissemination of salmonellae by this route.

4. A series of 43 children suffering from salmonellosis were studied to determine the frequency of the convalescent carrier state. Of these patients, twenty-six still excreted the paratyphoid bacillus in the feces subsequent to clinical recovery, as shown by a positive culture prior to discharge from the hospital. The public health significance of this observation is obvious.

5. Attempts to eliminate salmonellae in two cases of convalescent carriers by means of the administration of large doses of both aureomycin and chloromycetin for a period of seven days failed in both instances.

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Atomic Energy Training Center

The University of Rochester has opened a new million dollar center, financed by the Atomic Energy Commission, for research and training of physicians and technicians in medical problems relative to atomic energy development. Attached to the University of Rochester School of Medicine and Dentistry, the center is planned to help meet the nation's need:

1. to train medical and staff personnel of the armed forces for atomic warfare defense;
2. to build up a nucleus of civilian medical personnel having a knowledge of atomic energy;
3. to supply a source of trained research scientists in the branches of medicine, biology, physics, biophysics, physiology, chemistry and biochemistry, in which the new technics of nuclear energy may be employed;
4. to supply the necessary scientific personnel for the various regional laboratories of the A. E. C.

The new facilities permit expansion of the University of Rochester's studies for the United States Government in the medical and biologic aspects of radioactive substances that have been in progress for a number of years. Postgraduate training is being given in the treatment of radiation sickness, the use of radioisotopes for tracer studies, and therapy and instruction in such subjects as pharmacology and toxicology of radioactive materials, principles of shielding, design of radiochemical laboratories, technic of personnel monitoring, hazards of reactor operation, prevention of radioactive contamination and methods of decontamination, and the disposal of radioactive waste materials. Cancer research is among the electives open to trainees. Henry A. Blair, Ph.D., physiologist and biophysicist, is director of the project.

A Comparative Study of Presumptive Media for the Coliform Group*

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THERE has been a question for some time past in regard to which of the presumptive media listed in *Standard Methods for the Examination of Dairy Products* is best suited for the detection and enumeration of the coliform organisms.

The purpose of the study reported herein was to evaluate the presumptive test media recommended in *Standard Methods*[1] on a quantitative basis. It was desired to determine if any one of the media was more productive, or better suited to support coliform growth, than the others. The study was divided into three parts, viz., (1) determination of the concentration of inhibitory (bacteriostatic) agents, used in *Standard Methods* and other presumptive media, necessary to prevent gas production by coliform organisms, (2) comparison of the productivity of media where pure cultures of coliform organisms were used as inocula, and (3) comparison of the productivity of media inoculated with market milk samples known to be "coliform-positive."

Isolations of coliform cultures were made from raw and pasteurized milk and milk products, untreated well water, soil, human and calf feces, bovine mastitis, and human nose and throat cultures. Several cultures of *Klebsiella pneumoniae* were obtained from other laboratories. Isolations were made from media containing no bacteriostatic, or inhibitory, agents. Cultures represented members of the genera *Escherichia*, *Aerobacter*, and *Klebsiella*, and included a few, slow-lactose-fermenting types.

The use of relatively small numbers of coliform organisms was planned in most of the studies.

I. COMPARISON OF BACTERIOSTATIC AGENTS

The object of this particular study was to determine the concentrations of certain bacteriostatic agents necessary to prevent gas production by coliform cultures in the presence of milk.

The agents studied were brilliant green, crystal violet, sodium ricinoleate, and sodium desoxycholate since they are used as follows in presumptive media. (Desoxycholate lactose agar is recommended[2] where less than 1 ml. of milk is examined.)

Medium	*Bacteriostatic agent*	*Concentration*
Brilliant green bile broth	Brilliant green	1:75,188
Violet red bile agar	Crystal violet	1:500,000
Formate ricinoleate broth	Sodium ricinoleate	1:1,000
Desoxycholate agar	Sodium desoxycholate	1:1,000
Desoxycholate lactose agar	Sodium desoxycholate	1:2,000

A modification of the method of Kline[3] was used in studying the effects

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of the bacteriostatic agents. Varying amounts of the agents were added to a basic medium of lactose broth[4] to give the desired range of concentrations. The reaction was adjusted to give final readings of pH 7.2 to 7.4. Media were dispensed into test tubes in 8 to 10 ml. amounts and were sterilized at 121° C. for 15 minutes. Duplicate tubes of each concentration of the bacteriostatic substances were inoculated with 0.5 ml. of a suspension of a coliform organism either in sterile skim or whole milk. Coliform suspensions were made from inoculated nutrient broth[4] which had been incubated at 35° C. for 18 to 24 hours. Since relatively small numbers of organisms were desired in most of the studies, it was necessary to dilute the nutrient broth cultures. Control tubes of lactose broth, in duplicate, were seeded at the same time. Incubation was at 35° C. for 48 ± 3 hours after which tubes were examined for gas production. Altogether 58 cultures were examined. The effects of the four bacteriostatic agents were observed simultaneously for each given culture.

Just prior to inoculation of the four sets of media containing the various concentrations of inhibitory agents, plate counts were made, in duplicate, of the coliform suspensions (in skim or whole milk) to be used as inocula. Fifty out of 58 of the milk cultures, or 86.2 per cent, gave counts of less than 300 per inoculum of 0.5 ml.

The frequency of occurrence of inhibition of gas production by various concentrations of the bacteriostatic agents is shown in Table 1.

This tabulation shows that the cultures studied were less affected by the higher dilutions of crystal violet than by the higher dilutions of the brilliant green. Sodium ricinoleate was not very effective as an inhibitor in concentrations weaker than 1:25. Sodium desoxycholate, however, showed a very wide range of concentrations in which it was effective in preventing gas production.

II. COMPARISON OF MEDIA USING PURE CULTURES

This study pertains primarily to the evaluation of the productivity of various presumptive media where pure cultures of coliform organisms, in milk, were used as inocula.

The media employed in this phase of the study consisted of brilliant green bile broth, formate ricinoleate broth, violet

TABLE 1

Concentrations of Bacteriostatic Agents Necessary to Prevent Gas Production by Coliform Bacteria in 48 Hours at 35° C.

	Number of cultures inhibited by			*Number of cultures inhibited by*	
Dye concentration	*Brilliant green*	*Crystal violet*	*Salt concentration*	*Sodium ricinoleate*	*Sodium desoxycholate*
1:500		4	Less than		
1:750	2	6	1:25	51	
1:1,000	18	13	Less than		
1:2,500	8	15	1:50		6
1:5,000	10	7	1:50	1	15
1:7,500	4	3	1:75	1	9
1:10,000	2	5	1:100		14
1:15,000	3	1	1:175		4
1:25,000	2		1:250		4
1:30,000	2		1:500		1
1:35,000	1		1:1,000		1
1:45,000	1				
1:55,000	1				
1:65,000		1			

Note: There were also a number of cultures which produced no gas in 48 hours at 35° C., but which produced gas upon additional incubation. The numbers of such cultures in the various media were as follows: brilliant green, 4; crystal violet, 3; sodium ricinoleate, 5, and sodium desoxycholate, 4.

red bile agar, desoxycholate agar, desoxycholate lactose agar, lactose broth, tryptone glucose extract milk agar, and nutrient agar. The first four are *Standard Methods*[1] media. Desoxycholate lactose agar is recommended elsewhere.[2] The other media, viz., lactose broth,[4] tryptone glucose extract milk agar,[1] and nutrient agar,[4] were used for comparative purposes since they contained no specific inhibitory agents.

As a result of several preliminary tests, it was decided to use 10 plates for each dilution poured with solid media and 40 tubes for each dilution inoculated into liquid media.

Diluted suspensions of coliform organisms, from nutrient broth cultures, were made either in sterile skim or whole milk.

In the case of the solid media, following placing of the diluted coliform culture into each set of plates, the plates were poured with approximately 12 to 15 ml. of the agar medium. The milk-culture and medium were well mixed and the agar was allowed to harden. Following this a thin layer (approximately 3 to 5 ml.) of the respective agar medium was poured over the surface and allowed to harden. Plates were then inverted and incubated at 35° C. for 48 ± 3 hours after which counts were made. Later, mean values, or averages, were determined. Determination of ranges, or limits of variation, of the plate counts (i.e., mean values), and calculations incident thereto, were made after the method of Snedecor.[5]

In regard to the liquid media, 40 tubes per dilution were inoculated with varying dilutions of milk containing coliform cultures. Inocula were taken from the same dilutions used for plating. Incubation was at 35° C. for 48 ± 3 hours, after which tubes were examined for gas production. Most probable numbers (M.P.N.) from the dilution-extinction data were determined by the method of Halvorson and Ziegler.[6] The ranges, or limits of variation, to be expected for those values (i.e., M.P.N.) were determined, also by the method suggested by those authors.[7]

A total of 15 comparative studies were made, each using a different coliform culture. The identity of the cultures was as follows: *Aerobacter aerogenes*, culture numbers 1, 13, 53, 102; *A. cloacae*, nos. 34, 38, 94; *Escherichia coli*, no. 40; *E. coli* var. *acidilactici*, no. 71; *E. coli* var. *communior*, nos. 16, 31; *E. coli* var. *neapolitana*, no. 82; *E. freundii*, no. 27; *E. intermedium*, no. 11, and *Klebsiella pneumoniae*, no. 140.

The results of these comparative studies are shown in Table 2.

In general, in the comparisons of the M.P.N. values of the liquid media for any one culture, there appeared to be reasonably good agreement between those values. Brilliant green bile broth gave slightly higher counts than lactose broth while formate ricinoleate broth was poorest of the three. There were no significant differences between the range limits (limits of variation) of those media. (The range, or limit of variation, being used here for comparison is based upon the assumption that a variance of plus/minus (±) two standard deviations from the central values (M.P.N. and mean) is allowed for a normal, or slightly skewed, distribution, and that this variance will include approximately 96 per cent of the data in such a distribution. There is a significant difference in those instances where there is no overlapping of the ranges, or limits of variation, of the counts of the different media.)

In this paper, productivity of media, or the ability of the media to support coliform growth, is based upon two variables, viz., (1) the ranges, or limits of variation, of the counts, and (2) the M.P.N. (mode) and mean values of the counts. A significant difference between counts of various media (based on differences in range values) means that

there is a significant difference in the productivity of those media. This difference has meaning even where only a few comparisons are made. Relative to the M.P.N. and mean values, many of the differences are of a small magnitude. Before significance may be attached to any such differences, it would be necessary to make a large number of comparisons.

In the case of the solid media, the mean values for any one culture were, in general, fairly close and were in better agreement than the M.P.N. values of the liquid media. An approximation of the productivity of these media, on a

TABLE 2

Comparison of Bacterial Counts Obtained by Dilution-extinction Method and by Plating Method (Summary of Data)
Count, per ml.

Culture Identity

	1		11		13		16		27	
Medium	*Mean*[a]	*Range*[b]	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*
Lact	345	235–556	343	233–553	495	337–798	358	244–577	92	62–148
BGB	633	431–1021	360	245–581	435	296–702	431	293–695	111	76–179
FR	368	250–593	345	235–556	283	124–456	345	235–556	190	129–306
TGEM	469	428–510	402	366–438	376	338–414	302	285–320	106	97–115
							315	278–352[c]		
Nutr	486	415–557	385	357–413	351	306–396	273	252–294	102	93–111
							289	259–319[c]		
VRB	407	355–459	304	293–315	394	361–427	269	259–279	111	101–120
			427	370–484[c]			292	268–316[c]		
DL	480	396–564	382	364–400	394	330–458	284	262–306	110	103–117
							291	240–342[c]		
Des	431	376–486	332	292–372	266	252–279	272	253–290	100	90–109
					324	262–386[c]	274	235–313[c]		

Culture Identity

	31		34		38		40		53	
Medium	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*
Lact	149	101–240	500	340–806	123	84–198	34	23–55	252	171–406
BGB	123	84–198	578	393–932	113	77–182	50	34–81	330	224–532
FR	130	88–210	488	332–787	113	77–182	64	44–103	213	145–344
TGEM	139	129–149	352	298–406	129	122–135	31	29–33	184	172–197
Nutr	137	128–147	311	270–352	131	120–141	33	29–37	199	188–210
VRB	128	119–137	331	301–361	126	113–138	31	27–35	195	181–210
DL	139	133–145	317	304–330	130	118–142	29	24–33	213	195–232
			321	288–354[c]						
Des	127	119–135	275	255–294	105	100–110	29	24–33	169	156–183

Culture Identity

	71		82		94		102		140	
Medium	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*
Lact	39	26–63	115	78–185	26	11–42	29	20–47	46	31–74
BGB	42	29–68	78	53–126	38	26–61	17	12–28	42	29–68
FR	31	21–50	154	105–248	34	23–55	22	15–36	38	26–60
TGEM	37	33–41	83	77–89	33	30–36	27	23–31	53	50–56
Nutr	35	32–39	78	74–82	34	32–36	31	26–35	55	50–60
VRB	33	30–36	82	73–91	29	25–33	28	26–31	49	45–54
DL	37	33–40	88	77–99	31	27–35	26	23–30	53	48–58
Des	38	32–43	82	75–89	29	27–32	24	20–27	42	37–46

Medium identity: Lact = lactose broth; BGB = brilliant green bile broth; FR = formate ricinoleate broth; TGEM = tryptone glucose extract milk agar; Nutr = nutrient agar; VRB = violet red bile agar; DL = desoxycholate lactose agar; and Des = desoxycholate agar.

a = Mean, as used herein, refers to either "M.P.N." or "mean."

b = Range, as used herein, refers to either "range" or "limits of variation."

c = Mean and range obtained on another dilution.

TABLE 3

Comparison of Bacterial Counts Obtained by Dilution-extinction Method and by Plating Method (Summary of Data)
Count, per ml.

	Sample Identity 1		2		3		4		5	
Medium	Mean[a]	Range[b]	Mean	Range	Mean	Range	Mean	Range	Mean	Range
BGB	4	3–6	69	47–111	59	40–95	83	56–134	189	122–305
FR	9	6–15	71	48–115	33	22–53	190	129–306	2050	1400–3300
VRB	43	36–50	49	44–55	44	38–49	38	34–43	405	335–476
DL	47	37–56	14	13–16	43	38–48	43	38–47	369	320–419
Des	40	36–43	53	45–62	42	37–46	41	35–46	230	195–265

	Sample Identity 6		7		8[d]		9[d]		10[d]	
Medium	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range
BGB	c	c	50	34–81	360	245–581	9.4	6.4–15.1	9.5	6.4–15.2
FR	87	59–140	82	56–132	235	160–379	3.0	2.0–4.9	8.0	5.4–12.9
VRB	75	70–81	47	40–54	814	720–910	4.9	4.1–5.7	7.5	6.5–8.5
DL	72	60–84	50	44–56	726	640–810	6.1	5.4–6.7	23.9	21.4–26.5
Des	92	86–97	65	61–69	226	198–254	1.7	1.54–1.84	5.9	5.0–6.7
							3.1	2.70–3.40[e]		

	Sample Identity 11		12[f]		13[g]		14		15	
Medium	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range
BGB	1600	1100–2600	2.4	1.63– 3.87	2.3	1.6–3.7	8.8	6.0–14.2	22	15–35
FR	3000	2000–4800	2.4	1.63– 3.87	2.5	1.7–4.0	6.4	4.3–10.3	23	16–37
VRB	305	251– 359	119.0	105.0 –134.0	3.9	2.7–5.1	10.8	4.3–17.3	22	19–26
DL	217	193– 242	92.0	76.0 –109.0	3.3	1.9–4.7	12.9	9.4–16.4	23	20–26
Des	209	179– 239	13.0	10.0 – 17.0	3.4	2.7–4.1	13.8	10.8–16.8	22	18–26

Medium identity: BGB = brilliant green bile broth; FR = formate ricinoleate broth; VRB = violet red bile agar; DL = desoxycholate lactose agar; and Des = desoxycholate agar.
a = Mean, as used herein, refers to either "M.P.N." or "mean."
b = Range, as used herein, refers to either "range" or "limits of variation."
c = Results unsatisfactory.
d = Multiply results by "000."
e = Mean and range obtained on another dilution.
f = Multiply results by "00,000."
g = As is, without multiplying factor.

cumulative basis, showed it to be as follows (most productive first):

1. Tryptone glucose extract milk agar
2. Desoxycholate lactose agar
3. Nutrient agar
4. Violet red bile agar
5. Desoxycholate agar

Significant differences were noted for Culture numbers 34, 38, 53, and 140 where desoxycholate agar gave significantly lower counts than some of the other solid media.

In comparing the M.P.N. values of the liquid media with the mean values of the solid media there was, for the most part, fair agreement for any one culture. There were individual counts, however, which showed considerable deviations from the others. However, it was not possible to evaluate these media on a productivity basis because of the vast spread and variability of results. Significant differences were noted for Culture numbers 27, 34, 38, 40, 53, 82, and 140 where the counts of certain solid media were significantly lower than those of other solid media and of some of the liquid media.

III. COMPARISON OF MEDIA USING COLIFORM-POSITIVE SAMPLES OF MARKET MILK AND CREAM

This study was concerned with presumptive-type media recommended for

use in the examination of milk and milk products. Samples of pasteurized market milk and cream, positive for the coliform group, were used as test material.

The media employed were brilliant green bile broth, formate ricinoleate broth, violet red bile agar, desoxycholate agar, and desoxycholate lactose agar.

The manner of carrying out the tests, along with the calculation of results,[5-7] was practically identical with that given in the previous study relating to the comparison of media where pure cultures of coliform organisms were used. An exception was that the time of incubation of the solid media was 20 to 24 hours.[1]

A total of 15 comparative studies were made, each involving a different sample.

The results of these comparative studies are shown in Table 3.

The differences in the counts on the various media for some samples were very great while for other samples there was excellent agreement. This latter appeared to be true where counts were quite low. A comparison of the liquid media showed that out of the 15 separate tests, formate ricinoleate broth gave the highest count eight times while brilliant green bile broth was highest five times. The counts were the same for one sample, and there was one test from which a satisfactory count was not obtained from the brilliant green bile broth. Two samples (numbers 5 and 9) showed significant differences in their dilution-extinction counts.

In the case of the three solid media, it appeared that violet red bile agar was only slightly better than desoxycholate lactose agar. Desoxycholate agar gave lowest counts. There were nine samples responsible for significant differences in the counts on the solid media, and they were Sample numbers 2, 5, 6, 7, 8, 9, 10, 11, and 12.

Comparing the liquid and solid media together, it was not possible to evaluate them on a productivity basis. In addition to variability, there was another complicating factor, viz., that identical counts appeared several times for different media in the case of a given sample. Desoxycholate agar appeared to be least productive of the media tested. Significant differences in the counts from the liquid and solid media were noted for 12 different samples (numbers 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 14).

DISCUSSION

The results of the studies concerned with the inhibitory effect of the dyes showed that brilliant green was slightly more inhibitory than crystal violet. However, a majority of the coliform cultures tolerated dye concentrations greater than 1:10,000. The concentration of the dyes used in brilliant green bile broth and violet red bile agar, especially in the latter medium, is well below the level of 1:10,000.

In regard to the two salts, sodium ricinoleate and sodium desoxycholate, there was a considerable difference in their inhibitory, or bacteriostatic, action. Sodium ricinoleate was not very effective, at least in the concentrations tested. Sodium desoxycholate exhibited inhibitory action in concentrations ranging from less than 1:50 to 1:1,000, inclusive. The latter concentration is used customarily in desoxycholate agar.

In the above studies, several slow-lactose-fermenting, microaerogenic coliforms were encountered.

In the comparative study of the liquid and solid media, inoculated with pure cultures of coliform organisms, there appeared to be, in general, a fair agreement between the central values (M.P.N. and mean) for any one culture. Comparison of ranges, or limits of variation, showed significant differences in the ability of certain of the solid media to promote growth of the organisms

studied. It was not possible to determine a definite order of productivity between the liquid and solid media together because of the high degree of variability of the counts. Central values (means) of the solid media checked more closely than did the M.P.N. values of the liquid media. It was believed that many of the differences shown between the liquid and solid media in these studies could be accounted for on the basis of errors of random sampling. The fact that a definite order of productivity could not be determined where comparisons were made between the central values of the liquid and solid media may have been because not enough tests were made.

In the comparative study of the presumptive media inoculated with samples of market milk and cream, positive for the coliform group, a number of very striking differences in counts were obtained. These differences were much more pronounced than were those shown in the previous study where inocula containing pure cultures of coliform organisms were employed. There appeared to be some factor, other than the coliform organisms *per se,* that was active in determining the outcome of these tests. In the case of several samples, usually with low coliform counts, there was excellent agreement between counts of the different media. There was better agreement between the counts from the liquid media than between those from the solid media. Comparisons of the results from the liquid and solid media together revealed significant differences between media that had been inoculated with certain samples. In regard to 12 samples, liquid media gave significantly higher counts twice (Sample nos. 4 and 11) while solid media also gave significantly higher counts twice (nos. 1 and 12). For the other eight samples (nos. 2, 5, 6, 7, 8, 9, 10, and 14), the counts from one liquid medium or from one or two agar media were significantly higher or lower than certain others. It was impossible to determine an order of productivity for the liquid and solid media together. It is believed that if enough tests are made, it would be possible to evaluate these media more adequately on a productivity basis.

The fact that desoxycholate agar appeared to be least productive of the media studied may have been due to the effect of the bile salt, sodium desoxycholate. In this study, it was shown that sodium desoxycholate was inhibitory over a wider range of concentrations than were the other bacteriostatic agents studied.

A few irregularities were noted in the dilution-extinction data. They are known as "skips"[6] and "uncommon codes."[8] "Skips" show up as positive tubes in dilutions higher than other dilutions containing negative tubes. There are two types of "uncommon codes," viz., gradual and abrupt. The gradual type is found more frequently and makes its appearance where the change from all positive tubes to all negative tubes is spread over four or more dilutions. The abrupt type is shown by a sudden cessation of growth or gas production.

It is believed that the number of organisms used in productivity studies should not be excessive but should reflect the numbers commonly found in commercial samples of milk and milk products. Apparently the use of pure cultures alone is not enough. This fact is evident when a general comparison is made between the media inoculated with pure cultures and those inoculated with samples of market milk and cream.

It is also believed that by using a quantitative method in testing the different media, the influence of the sampling error is lessened. It is difficult to evaluate many of the data appearing in the literature because often too few tubes or too few plates were used. It is not known whether differences reported were due to actual inherent properties

of the media or to errors of random sampling. Another factor is the effect of certain other microörganisms. These microörganisms (coliforms or non-coliforms) are considered as being possible sources of antibiotic substances which may be responsible for disparity in counts. Such substances, for some reason or other, are thought of as acting as coliform-inhibitors in certain media while being without effect in other media. The presence of these substances would more likely be found in samples with very high bacterial counts.

The difference in the time of incubation of each type of medium (liquid and solid) may be another factor influencing some of the pronounced differences noted.

A final point to be brought out is a consideration of the criteria which are used to denote positive results for the liquid and solid presumptive media. Where comparisons have been made of the productivity of these two types of media, they have been based upon two entirely different standards, viz., production of gas in liquid media and production of acid in solid media. There are certain coliform organisms and closely related types which may give a positive result on one medium (e.g. solid) while the other medium (liquid) may be negative, and vice versa. If this occurs, significant differences may be noted in coliform counts when the two media are compared.

The evaluation of media for productivity is not a simple matter. The investigator must give due recognition to factors which may influence the outcome of the tests before he attempts to evaluate his results.

SUMMARY

1. The bacteriostatic effect of the dyes, brilliant green and crystal violet, and of the salts, sodium ricinoleate and sodium desoxycholate, was tested on 58 different cultures of the coliform group.

2. Brilliant green was slightly more inhibitory than crystal violet. The effective bacteriostatic concentrations of these dyes were, in general, considerably greater than the concentrations used in presumptive media.

3. Sodium ricinoleate was not very effective as a bacteriostatic agent in a concentration weaker than 1:25. Sodium desoxycholate exhibited bacteriostatic properties in concentrations ranging from less than 1:50 to 1:1,000, inclusive.

4. Fifteen comparative tests were made of liquid and solid media, using pure cultures of coliform organisms. In general, there was fair agreement between the counts taken from liquid and solid media. Significantly lower plate counts were noted in seven of the tests. No definite order of productivity could be determined for the liquid and solid media together.

5. Fifteen comparative tests were made of liquid and solid presumptive media inoculated with samples of pasteurized market milk and cream, positive for the coliform group. Results varied from excellent agreement to very wide differences. In the case of 12 samples, significant differences were noted in both plate and dilution-extinction counts from various media. A definite order of productivity could not be established.

6. Desoxycholate agar showed a tendency to give lower counts than the other media, but in most instances the differences were not significant.

7. In regard to the dilution-extinction data, a few irregularities were noted.

8. This study has shown that coliform tests, for evaluating the productivity of presumptive media, should be set up on a quantitative basis, and that mixed, rather than pure cultures, should be used as testing material. Further, many tests should be performed. And finally, there is a need for further study to determine whether paracolon types and other aberrant lactose fermenters, and other causes (such as antibiotics) are responsible for apparent or real differences in the productivity of media, and to ascertain the extent to which the phenomena occur.

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1,000 Americans May Study Abroad

The U. S. State Department has announced opportunities for more than 1,000 Americans to study abroad in the academic year 1951–1952 under the terms of the Fulbright Act of 1946. A similar number of opportunities are available in this country for foreign students. Reciprocal arrangements have been made with some 15 countries in Europe, Asia, and Australia. Nearly 300 opportunities for teachers, graduate scholars, research scholars, and lecturers and specialists are available in France, more than 200 in the United Kingdom and Colonies, about 150 in Italy, and smaller numbers in other countries.

This program is made possible through the use of foreign currencies and credits acquired through the sale of surplus properties abroad. Grants, usually made for one academic year, include transportation, tuition, living allowance, and books and equipment. Grants to foreign nationals include round trip transportation only.

The closing date for applications is October 15, 1950. Program announcements for the separate countries are now available. Applications for the various categories of opening should be made as follows:

Research Scholars, visiting lecturers and specialists—Executive Secretary, Committee on International Exchange of Persons, Conference Board of Associated Research Councils.

Graduate Study—Students enrolled in American universities, local Fulbright Student Program Adviser. Others—The Institute of International Education, 2 West 45th St., New York 19.

Teachers—In National Secondary Schools abroad, U. S. Office of Education, Washington 25, D. C.; In American Secondary Schools abroad, American Schools Service, American Council on Education, 744 Jackson Place, N. W., Washington 6, D. C.

Hazards in the Use of Radioactive Static Eliminators and Their Control*

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STATIC electricity is created in the course of many industrial processes. It can be generated in almost any operation where paper, plastic, rubber, or some other dielectric is passed at high speed between rollers or other friction-creating surfaces. It is particularly prone to develop when these surfaces are of different materials, as in the passage of a sheet of paper between the copper cylinder and the rubber impression roller in a rotogravure press. The problem is one of constantly increasing importance because of such factors as new higher speed equipment, the greater use of plastics, and the development of harder coated papers.

PROBLEMS CREATED BY STATIC ELECTRICITY

Static electricity manifests itself in a variety of ways, which not only interfere with production, but in certain instances may create hazards. For example, in the rubber coating of fabrics, a heavy static charge develops on the sheet being coated as it passes between the spreading rollers. The solvents used in the coating mixture are frequently quite volatile and flammable, and a spark developing in the heated drying tunnel through which the material subsequently passes may result in a serious fire or explosion.

Apart from actual hazards, however, static creates serious industrial problems by causing the materials being processed to behave very erratically. Sheets of paper or plastic adhere together when they should separate, or fly apart when they should stack evenly. Charged particles of powdered material scatter widely when they should clump together during filling operations, but stick tenaciously to a surface when it is important to be able to brush them off.

METHODS OF STATIC CONTROL

Many physical means have been advanced in attempts to correct the problem presented by the development of a static charge in a particular industrial operation. Probably the commonest, is to pass the charged material over grounded metal tinsel or combs, but they frequently fail to make contact with the dielectric surface. Other methods involve the basic principle of ionizing the air surrounding the material in order to allow the static charge to leak off. Humidifiers, gas flames, and high voltage electrodes have all been used, but each has its own disadvantages or hazards.

The most recent of these methods is the use of radioactive alpha-emitting bars to ionize the air. Two types of bars have been advocated for this purpose: one containing polonium, which is essentially an alpha emitter, and the other containing radium, which, in addition,

* Presented before the Industrial Hygiene Section of the American Public Health Association, at the Seventy-seventh Annual Meeting in New York, N. Y., October 27, 1949.

gives off beta and gamma rays in the course of its subsequent disintegrations. The former, however, has had a somewhat limited field of usefulness because of its short half-life, which necessitates fairly frequent replacement. It has also been reported [1] that the polonium coating on the bars tends to disrupt, creating a hazardous alpha-emitting dust. There is some evidence, though, that this may be largely a function of the method of preparation of the material. This matter is under active investigation at the present time.

Radium bars, on the other hand, have a half-life of about 1,600 years, so that, once installed, they require no further replacement. These bars consist [2] of a mounting holding a thin strip of gold foil containing a measured quantity of radium. This is covered with several thin layers of plating, the outermost one being of nickel, 1 μ in thickness. Two types of foil have been evaluated in operation, containing respectively 25 and 50 μg. of radium per linear inch.

EXPOSURES USING RADIUM BARS

There are a number of hazards involved in the handling of or exposure to radium.[3] These comprise inhalation of radium dust and radon gas, and exposure to alpha, beta, and gamma radiation. Because of the construction of these bars, no radium dust hazard exists. All the other hazards, however, are present to some degree.

Radon—The 1 μ nickel plating over the radium foil is supposed to prevent the escape of appreciable amounts of radon. Tests show, however, a definite though slight leakage of radon through the plating. This would not accumulate to toxic levels with normal room ventilation, but storage in large numbers or in a confined space should be avoided. Damaged or defective bars may, under certain circumstances, leak considerable amounts of radon, and the bars should be checked for this any time they are dropped or otherwise mishandled. In the absence of a break in the plated surface, there is no increase in radon escape even after a period of years.

Considerable dust and lint tends to collect on the radiating surface of the bars in operation. This interferes with alpha emission when present in any appreciable amount, and must therefore be cleaned off at frequent intervals. It had been thought that this dust might adsorb sufficient radon to become hazardous, and require careful handling and disposal of the cleaning materials. Samples of dust which had been lying on the bars for over 24 hours were collected, and proved to be essentially nonradioactive.

Alpha Radiation—Alpha rays have a maximum range of less than 3 in. in air,[4] and are completely stopped by even a sheet of paper. Since it is the alpha particles which are maximally effective in ionizing the air, it is important that any shielding employed should not interfere with their function. In practice, the bars are usually mounted with their active surface about 1 in. or less from the material which accumulates the static, and no shielding should be interposed in this space. The shielding and distance precautions necessary for protection from beta and gamma radiation will effectively guard against all alpha exposure. There may be occasions, however, when bars have to be handled momentarily, as in removing or cleaning them, and at such times thin gloves should be worn to protect against alpha exposure.

Gamma Radiation—The control of gamma radiation is considerably more difficult. The present maximum total dose of gamma radiation to which any part of the body of a person should be permitted to be exposed has recently been established by the National Bureau

of Standards[5] at 300 mr (milliroentgens) per week, or 6.25 mr per hour on the basis of a 48 hour week.* The patterns of emission of radiation from the radium bars, considering them as linear sources, was reported by Evans[4] in 1946. Figure 1 shows the isodose curves for

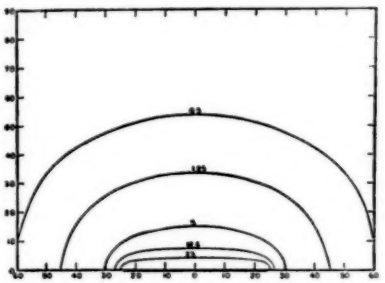

FIGURE 1. Isodose curves for gamma radiation, in mr/hr, from a line source 48 in. long, containing 25 μg. of radium per in. Horizontal and vertical distances in inches. (Evans)

gamma radiation he obtained from a 48 in. source of 25 μg. per linear in. From this, it is apparent that this maximum permissible dose would be reached at a distance varying from about 12 in. at the center to 6 in. at the ends. These distances will be slightly increased by the use of a higher radium content bar and also by an increase in length; but, in general, a safe working exposure can be obtained by the maintenance of an 18 in. distance between a worker and the heaviest bar seen in operation: namely, 6 ft. long, with 50 μg. per linear in. Since a thickness of over 1 in. of lead shielding is required to reduce the protective distance by one-half, it is obviously impracticable, except in rare instances, to shield effectively against gamma radiation from these sources.

Beta Radiation—Evans[4] had recommended a maximum allowable dosage of beta radiation of 125 mrep (millireps) per hour. His isodose curves for the beta radiation from the same bar, shown in Figure 2, indicated that this value

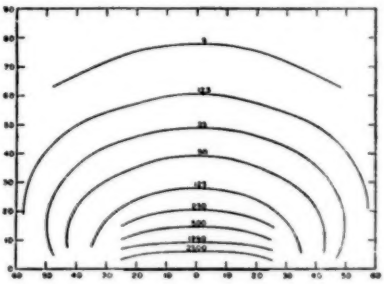

FIGURE 2. Isodose curves for beta radiation in mrep/hr, from the same 48 in. source. (Evans)

is reached at about double the distance for the maximum permissible dosage of gamma radiation. The present attitude of the Atomic Energy Commission, however, is to allow only the dosages for beta radiation in mrep that they permit for gamma radiation in mr, and to consider them as additive in evaluating the total exposure.* On this basis, it is apparent that even for a 48 in. 25 μg. bar, the maximum permissible dosage for beta radiation is reached over 6 ft. away from the center of the radiat-

* Since the presentation of this paper, a report was received on the meeting of the Radiation Protection Committees of the United States, Great Britain and Canada, held in Chalk River, Canada, on September 29 and 30, 1949. This conference agreed upon the maximum permissible tissue dose of 300 mreps per week for both beta and gamma radiation at any point within the body. For the basal layer of the epidermis, however, it allowed 500 mreps for whole body exposure and 1,500 mreps for the hands and forearms only. Since, when the hands alone are considered, the skin exposure is the major concern, a maximum of 1,500 mr per week (31.25 mr per hour on the basis of a 48 hour week) might be permitted at those points where exposure to other parts of the body does not occur.

* Since the beta radiation from radium has little effect below the basal layer of the epidermis, the Chalk River Conference recommendations of 500 mrep per week for whole body radiation and 1,500 mrep per week for the hands only might be permitted.

ing surface, and somewhat farther for bars which have a higher radium content. Fortunately, however, beta radiation is relatively easily controlled by shielding, being completely eliminated by ⅛ in. of steel, and reduced to negligible amounts by ¼ in. of aluminum. Since the foil is almost always attached to steel or aluminum mountings of at least those thicknesses, the mountings themselves will afford adequate protection from beta radiation to the workers, provided the bars are directed away from them.

SHIELDING FOR BETA RADIATION CONTROL

Until recently, these mountings have consisted of flat or only slightly recessed bars having practically no side shielding. When mountings pointed directly upward or downward, the lateral beta radiation was above tolerance for distances of up to 6 ft., if no shielding was interposed. In some instances, this could be controlled by the use of a thin sheet of brass, steel, or other material, but this would frequently interfere with operation of the equipment. We felt that the same effect could be achieved by mounting the radium foil at the bottom of a channel which would have a sufficiently wide exit portal not to interfere with alpha radiation, but would effectively control the lateral spread of beta rays. A channel having vertical sides was first tried, but this was found to reduce the alpha effect appreciably. The channel walls were then bevelled 20°, on the basis of theoretical calculations that this would still provide adequate shielding, while causing minimal interference with the alpha radiation.

Circumferential isodose measurements were made on the various types of mountings to demonstrate the effectiveness of their shielding. These measurements were made with a Beckman MX-5 beta gamma survey meter. The Geiger-Müller probe of this instrument is equipped with a thin brass sliding shield. In each instance, the innermost curve represents isodose readings to an arbitrary value with the shield in place, and is supposed to represent gamma radiation. The middle curve was obtained from the points where the difference between readings at the shielded and unshielded probe equalled this value, and is supposed to represent beta radiation. The outermost curve was obtained with the shield off and, theoretically, equals the sum of the beta and gamma effects. These curves, however, do not represent true beta and gamma readings. Comparisons made at a few points against a calibrated ionization chamber showed that the outer curves represent considerably less than the actual beta exposure, probably due to the insensitivity of the Geiger-Müller tube to soft beta rays. The inner curve represents somewhat more than the actual gamma reading, because of incomplete shielding of

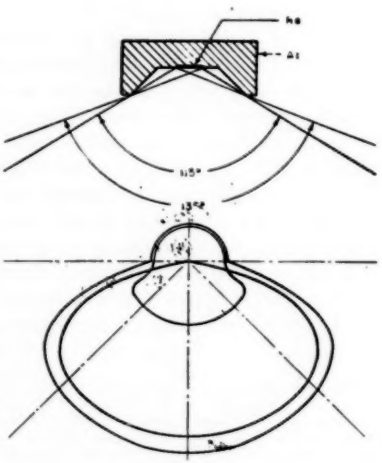

FIGURE 3. Cross-section of the slightly recessed radium foil mounting first used, showing the wide portal; and below, isodose curves for hard (inner curve), soft (middle curve), and combined (outer curve) radiation, with mounting at intersection of straight lines.

the thin brass slide. The curves, therefore, can be considered merely the patterns obtained from soft and hard radiation, and no quantitative values have been assigned to them. They do, however, show quite accurately the angle of distribution of the rays and the shielding effect of the various housings.

Figure 3 shows the curves obtained with the slightly recessed mounting. It will be noted that almost as much distance is required laterally as directly anteriorly to avoid overexposure of a worker to soft radiation. Assuming the 6 ft. distance obtained from the previous beta isodose chart, this would in many instances make it impossible to mount the bars on a piece of equipment without providing additional shielding.

Figure 4 shows the same curves obtained from the channel with vertical sides. It should be noted how much the lateral exposure has been decreased, keeping practically all the soft radiation well within an angle of 90°.

The curves for the compromise housing which was finally adopted are shown in Figure 5. The upper diagram shows the cross-section shape of this housing and the angles subtended by the radiation. The isodose curves, while slightly wider than those in Figure 4, show a marked improvement over the unshielded mounting and still include the soft radiation almost entirely within a 90° portal. By slightly rotating these housings away from the workers, it is possible to eliminate their exposure to beta radiation almost completely.

A simple experiment was made to determine how much alpha loss occurred in using these shielded housings. Short segments of the slightly recessed, vertical wall, and beveled housings were mounted in such a position that their radiating surfaces were exactly 1 in. from a table surface and facing directly downward. One-half of each bar was then covered with paper to shield out alpha radiation, and a short exposure made onto x-ray film lying flat on the table. Figure 6 shows the results of that exposure. The three bands represent respectively the vertical channel, the beveled channel, and the slightly recessed mounting, with the lighter half representing beta and gamma radiation alone and the darker the alpha radiation in addition. Equally spaced densitometer readings were taken across all these bands in both the lighter and darker areas. These readings were then plotted, with the areas under the curves obtained representing the total radiation effects. The alpha radiation could therefore be evaluated from the differences between the totals obtained

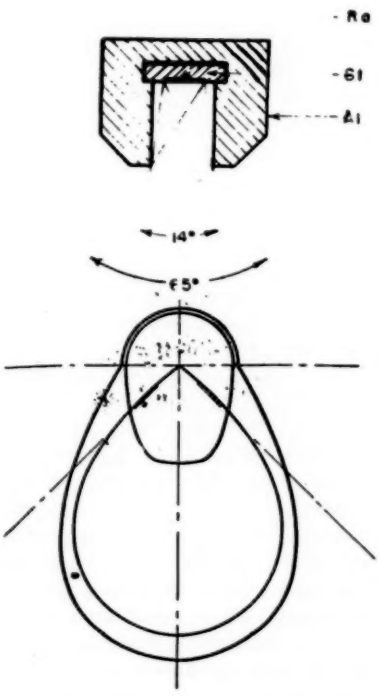

FIGURE 4. Cross-section and isodose curves for mounting with vertical lateral shielding. The radium foil is attached to a steel strip inserted into channel in aluminum housing.

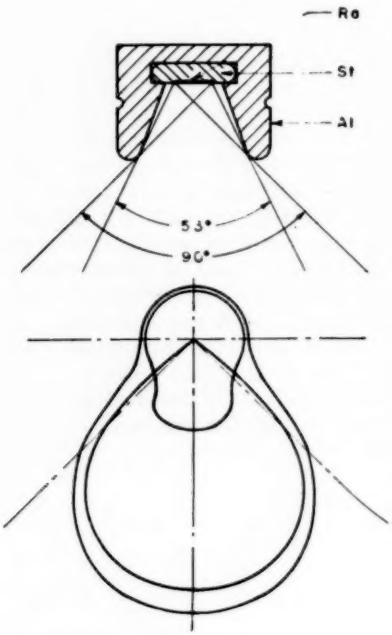

FIGURE 5. Cross-section and isodose curves for mounting with beveled lateral shielding.

from the lighter and darker halves of the bands. Assuming 100 per cent alpha radiation for the recessed mounting, the results were respectively 66 per cent for the vertical channel, a somewhat excessive loss, and 83 per cent for the beveled channel, which was considered quite satisfactory. These figures correlate very closely with the percentage loss calculated from the geometry of the mountings. They probably correspond quite closely to the results obtained during actual use of the bars, since the experimental set-up reproduced fairly closely the relationship in actual industrial use, with the film in the position of the paper or other material from which the static charge is to be removed. Incidentally, this film also demonstrates very strikingly the wide scattering of radiation from the unshielded bar. It can be assumed that this is largely beta radiation, since it is so completely stopped by the aluminum housing of the other bars.

INDUSTRIAL APPLICATIONS

The basic requirements for control of these radiation hazards are therefore a minimum distance between the worker and the bars for protection against gamma radiation; and proper shielding, which can in most instances be made an integral part of the mounting itself, for control of the beta radiation. The application of these principles is an individual problem, requiring careful evaluation, for each piece of equipment. This evaluation should be based on the number, size, and location of the radium bars, and the operating schedule of the machine. It should be checked by means of surveys with radiation metering instruments, film badge monitoring, and medical supervision.

RADIATION METERING SURVEYS

Upon installation of the radium bars on a machine, measurements should be made with radiation metering instruments to determine the hazard, if any, to the workers operating it. These readings should be taken on all sides of the machine, with particular emphasis on those spots where the operators spend the greatest part of their time. Where exposures are found to be excessive, repositioning of the bars should be tried to obtain a safer location. This may

FIGURE 6. Autoradiograph of radium foil in the three type mountings as indicated. (See text for explanation.)

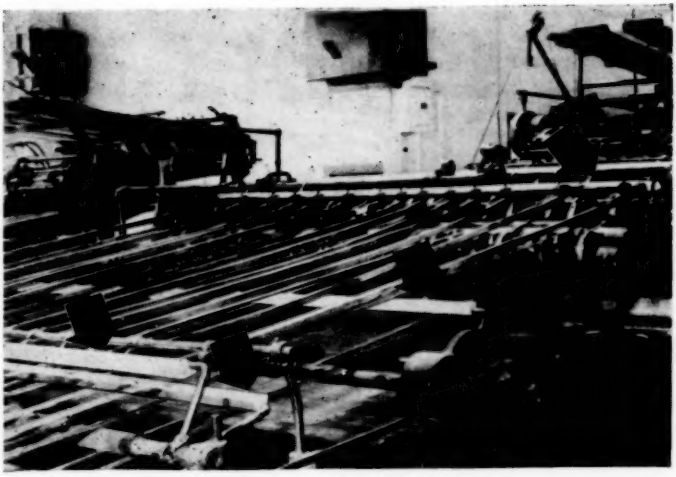

FIGURE 7. Four radium foil static eliminators installed on a flat-bed press.

sometimes be accomplished by placing a bar so as to utilize a part of the machinery itself, such as a heavy metal roller, for shielding. Where exposure to beta radiation alone is excessive, a slight rotation of the mounting will often markedly reduce it. These changes may occasionally require some compromise of the position of the maximum effectiveness. Work in areas slightly above tolerance may sometimes be permitted for short periods, provided the average exposure for the entire time remains below tolerance. The data obtained from any one machine may serve as a guide in installations on similar units, but each installation should be individually checked.

EXAMPLES IN INDUSTRY

These principles can best be illustrated by a few examples from our experience with the bars in New York State, which has been confined largely to installations on printing presses, of both the flat-bed and high speed rotary types. Figure 7 shows a typical installation, consisting of four of the bars mounted on a flat-bed press. These bars have unshielded, slightly recessed mountings, but in this instance, they are so located that the press machinery itself provides adequate lateral barriers on all sides.

In checking the location of the bars, it is important to observe whether their position shifts during the operation of the machinery. Figure 8 shows a pair of bars mounted on the shuttle delivery of another flat-bed press. In operation, the pressman frequently stands at the foot of the stack of sheets shown in the lower left hand corner of the illustration. The bars ride back and forth with the shuttle, and at the end of their traverse are actually within a few inches of the pressman's station. When the press is stopped, however, the bars are usually in the position shown in the illustration. Measurements taken at this time would not reveal any hazard, which could only be picked up by observations and readings taken with the press in operation. In this instance it was necessary to remove the bars from the ends of the shuttle and fix them farther back on the

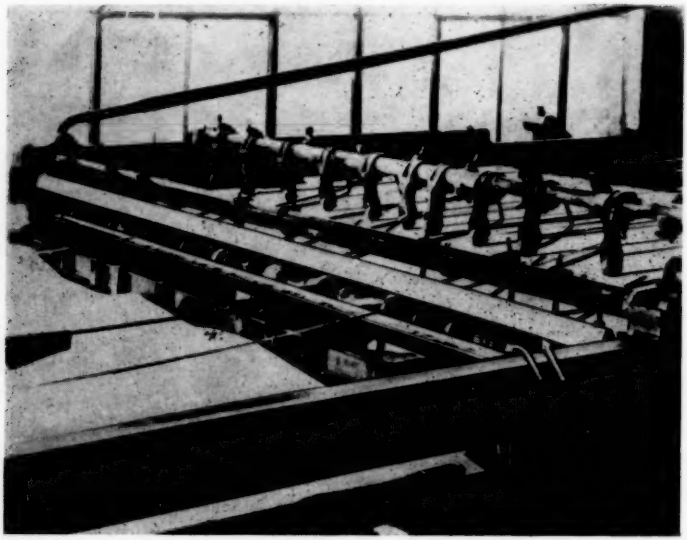

FIGURE 8. Two static eliminators mounted on the end of the shuttle delivery of a flat-bed press.

press, in order to eliminate overexposure of the pressman.

Another important consideration is an evaluation of the entire operating cycle of the equipment on which the bars are installed. Bars which appear quite safe when operating the machines may present a considerable hazard during such procedures as setting up the equipment, clean-up, and maintenance. For example, the right hand bar shown in Figure 9 would appear, at first glance, to be quite safely located. During make-ready on this press, however, the worker has to lean over the plates shown in the lower right hand corner, and extends his head and upper trunk into the tunnel above them. Measurements taken in this tunnel revealed an exposure to beta radiation many times tolerance. This was easily corrected by mounting the bar on pivots so that it can be rotated toward the ceiling during the make-ready procedure.

In certain instances, excessive exposure may result to a few selected workers, because they are engaged in specialized work. As an example, in touching up the copper cylinders on a particular type of high speed multi-unit rotogravure press, the engraver had to sit with his legs in fairly close proximity to a radium bar. Since this work was done exclusively by one or two men, they were subjected to a much greater exposure than if the work had been distributed among all the pressroom employees.

FILM BADGE MONITORING

Once the optimum positions of the bars have been established, the amount of exposure received by the workers is dependent on their specific activities and on the frequency of their proximity to these bars. Film badge monitoring is therefore the only reliable check on the actual dosages to which they are subjected. This should be initiated as soon as the instrument surveys indicate that

the bars appear to be properly located, and should be continued on a weekly basis until assurance is obtained that the exposures are safe. Wrist badges should be used in addition to chest badges where the hands receive the greatest exposure.

MEDICAL SUPERVISION

The objective of all controls is to prevent injury to the workers, and this can only be assured by a periodic medical check-up. For this reason, a program of medical supervision would be advisable in any industry where these radium bars are employed. An initial physical examination and complete blood count should be made to screen out those workers who should not be exposed to any radiation hazard, and to serve as a control for subsequent examinations. Since it is assumed that safe operating conditions have been established by means of instrument surveys and film badge monitoring, a subsequent minimum program of an annual reëxamination and blood count should be adequate. The hands of the workers, which often receive the greatest exposure, should be checked at that time for evidence of excessive radiation, such as flattening of the finger ridges.

SUMMARY

In conclusion, we have pointed out that the use of radium-containing bars for the control of static electricity generated in various industrial operations requires in turn careful control of the radiation hazards presented by this material. Protection against the gamma radiation involves the maintenance at all times of a minimum distance between the worker and the source, since shielding is generally impractical because of the great thickness of lead required. The beta radiation, on the other hand, requires a much greater distance to get below tolerance dosage, but is much more readily controlled by shielding.

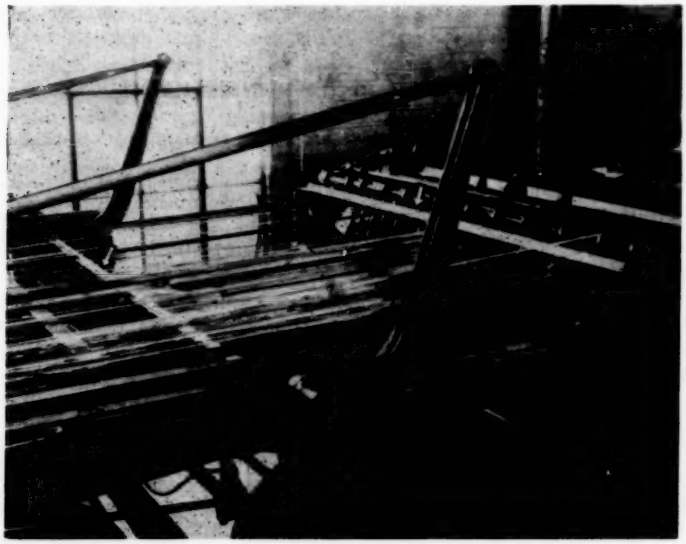

FIGURE 9. Static eliminator bar (right) over make-ready tunnel on flat-bed press.

Much of this shielding can be accomplished by the use of a properly designed housing for the source, without interfering appreciably with the alpha radiation necessary for the ionization of the atmosphere. No additional precautions are necessary for protection against the alpha rays, except the use of gloves when momentarily handling the bars, as in cleaning them. There is no hazard from radon gas in a normally ventilated workroom, and no appreciable adsorption of this gas in the dust and lint which collects on the bars.

A careful evaluation of each industrial operation for which the bars are recommended is essential in order to provide adequate protection for the employees. Care must be used in locating bars to provide proper distance and shielding for all phases of operation. Film badge monitoring and medical supervision of the workers are advisable as a final check on the adequacy of the control measures.

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Certifying Board in Nutrition

A certifying board to establish standards of qualifications of persons as specialists in human nutrition has been established. Although the principal purpose of the board is to certify nonphysician specialists, physicians may be certified if they wish and are able to meet the requirements. Requirements for admission to examination and certification are:

1. citizenship in the United States or Canada;
2. presentation of evidence of satisfactory moral and ethical standing;
3. Ph.D. in biologic science or M.D. degree from an approved school;
4. courses or training equivalent to a minimum of three semester hours in at least three of the following fields: food technology, microbiology of food, human physiology, large scale food preparation and hospital dietetics, and
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Relationships Between Nutrition and Pregnancy as Observed in Recent Surveys in Newfoundland*†

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RELATIONSHIPS between nutritive state, the course of pregnancy, and maternal and infant health have been widely studied in recent years. Pregnancy is known to increase nutritive requirements, and the importance of providing adequate nutrition during this period has been repeatedly emphasized. However, many aspects of the relationship between nutrition and pregnancy need further investigation. Communities in which malnutrition is prevalent should be useful laboratories for such studies. Findings observed in recent surveys in Newfoundland, where large segments of the population live on marginal diets, form the basis of this communication. The data to be reported relate largely to the effects of recent and of repeated pregnancy on maternal nutriture and the influence of remedial measures on nutritive state.

Nutrition surveys were conducted in 1944 and 1948 in Norris Point, Newfoundland, a small fishing village on the west coast of the island.[1-2] In the interval between the two surveys, the Newfoundland government initiated a nutrition program which included educational features, compulsory enrichment of all white flour according to United States standards (July, 1944), and fortification of margarine with vitamin A to a level of 45 I. U. per gram (1946).

The population groups included in the surveys were: women who had been pregnant within the previous two years, their children aged 3 to 6 and 10 to 14, a few men, and, in 1948, a small number of other women. The group of recently pregnant women comprised 39 of the 113 persons examined in 1944 and 36 of 126 persons in 1948.

The study included a detailed dietary record, a medical history and physical examination with particular attention to findings related to nutritional state, and certain laboratory tests. In 1944, the concentration of hemoglobin and of serum proteins was determined. In 1948, additional procedures were included: measurement of the levels of carotene, vitamin A, and riboflavin in the serum and estimation of the four hour urinary excretion of thiamine, riboflavin and N′-methyl nicotinamide after a test dose of vitamins.[2]

DIETARY FINDINGS

The typical diet in Norris Point, Newfoundland, has been previously described.[1-2] Bread, crackers, cereal grains, potatoes, desserts (cake, pie, cookies), molasses, jams, and tea with

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† Nutrition surveys in Norris Point, Newfoundland, in 1944 and 1948 were made possible by grants from the Williams-Waterman Fund of the Research Corporation.

TABLE 1

Nutrient Content of Diets of Recently Pregnant Women — Newfoundland 1948

Quartiles	*Calories*	*Protein gm.*	*Ca gm.*	*Fe mg.*	*A I. U.*	*B_1 mg.*	*Ribo mg.*	*N. A. mg.*	*C mg.*
1st	1,302	44	0.26	8.4	1,851	0.82	0.75	8.9	8
2nd (median)	1,922	54	0.42	11.4	2,959	1.09	1.04	12.3	26
3rd	2,657	77	0.67	15.8	5,486	1.41	1.58	16.9	79
Mean	2,089	62	0.55	12.9	6,018	1.17	1.33	13.2	58
Estimated mean in 1944				9.8	5,191	0.65	1.00	9.4	

small amounts of evaporated milk, form the basis of the diet. Other foods commonly used include wild game, salt fat meat, fish, cabbage, turnips, and dried beans. The consumption of citrus and other fruits, green leafy and yellow vegetables, is low in a majority of families. Table 1 shows the nutrient intake of the recently pregnant women by quartiles for 1948, as calculated from a history of food ingested during the previous 24 hours. The dietary records in 1944 were not sufficiently detailed for similar calculation. However, no change was noted in the dietary pattern in 1948 and the chief difference in nutrient intake appeared to be the use of margarine fortified to a higher level with vitamin A, and the substitution of enriched for unenriched flour. The average quantity of flour consumed daily was 141 gm. per person. This amount of enriched, as compared to unenriched flour, will increase nutrient supply as follows: thiamine 0.52 mg., riboflavin 0.33 mg., niacin 3.8 mg., and iron 3.1 mg. In terms of the total daily nutrient intake in Norris Point, this change would practically double the supply of thiamine and increase that of riboflavin, niacin, and iron by one-third. The use of margarine fortified with vitamin A at a level of 45 I. U. per gm. in 1948, as compared with 13 I. U. per gm. in 1944, was estimated to increase the mean intake of this vitamin 827 units daily.

CLINICAL FINDINGS

In order to ascertain the influence of recent pregnancy on nutritive state, the incidence of symptoms and signs which may suggest nutritional deficiency was determined in women who had been pregnant within the previous two years and compared with the incidence in other population segments. While subjective complaints are unreliable criteria for judging nutriture, it is interesting to note that, in 1944, women who had recently been pregnant complained of more burning and itching of the eyes, photophobia, soreness of the tongue, nervousness, irritability, fatiguability, palpitation, dyspnea, purpura, and bleeding gums than did persons in the other groups. However, the incidence of several findings, i.e., numbness and tingling of the legs, burning of the feet, and soreness of the lips was greater in adult men. Symptomatology was essentially unchanged in 1948 except for a slight decrease in the incidence of photophobia, burning of the eyes, soreness of the tongue, nervousness and irritability in the women, and a decrease in symptoms relative to the lips and nervous system in the men. The differences between groups and between surveys was small and not of statistical significance.

The incidence of a number of signs which may suggest nutritional deficiency was found to be significantly higher in recently pregnant women than in the rest of the population (Table 2). In 1944, this was noted for thickened conjunctivae, conjunctival injection, marked atrophy and hypertrophy of the lingual papillae, magenta tongue, fissures of the tongue, abnormalities of the gums, and systolic cardiac murmurs. In 1948, the incidence of thickened conjunctivae, redness, swelling, recession and bleeding

TABLE 2

Comparative Incidence of Signs Suggesting Nutritional Deficiency in Recently Pregnant Women and Other Persons in Norris Point, Newfoundland, in 1944 and 1948

Sign	1944 Survey			1948 Survey			Change in Incidence (1948–1944)	
	Women † (39) %	Others (74) %	Difference (Women-Others) %	Women † (36) %	Others (90) %	Difference (Women-Others) %	Women %	Others %
Follicular keratosis	38	40	−11	50	40	+10	+12	− 9
Dry, scaling skin	15	7	+ 8	11	7	+ 4	− 4	0
Thickened conjunctivae	97	49	+48*	97	38	+59*	0	−11
Nasolabial seborrhea	18	18	0	3	3	0	−15	−15
Thick, pigmented pressure points	31	15	+16	19	9	+10	−12	− 6
Circumcorneal injection	23	26	− 3	17	10	+ 7	− 6	−16
Conjunctival injection	59	31	+28*	31	34	− 3	−28	+ 3
Angular stomatitis	28	18	+10	8	16	− 8	−20	− 2
Cheilosis	5	7	− 2	31	34	− 3	+26	+27
Atrophy and/or hypertrophy lingual papillae (total)	85	73	+12	50	44	+ 6	−35	−29
Slight	26	46	−20	28	30	− 2	+ 2	−16
Moderate	21	19	+ 2	22	13	+ 9	+ 1	− 6
Marked	38	8	+30*	0	1	− 1	−38	− 7
Magenta tongue	49	19	+30*	6	2	+ 4	−43	−17
Red tongue (sides, tip)	13	20	− 7	19	17	+ 2	+ 6	− 3
Fissures of tongue	45	7	+38*	25	9	+16	−20	+ 2
Swollen tongue	3	3	0	6	0	+ 6	+ 3	− 3
Calf tenderness	13	3	+10	3	1	+ 2	−10	− 2
Loss of AJ or KJ	8	2	+ 6	6	2	+ 4	− 2	0
Plantar dysesthesia	8	2	+ 6	0	0	0	− 8	− 2
Motor weakness	3	0	+ 3	0	0	0	− 3	0
Vibratory sensation lost	5	3	+ 2	0	0	0	− 5	− 3
Gums, redness, swelling, and/or recession	72	39	+33*	72	47	+25*	0	+ 8
Bleeding gums	21	11	+10	33	2	+31*	+12	− 9
Purpura or petechiae	10	0	+10	8	1	+ 7	− 2	+ 1
Perifolliculosis	—	—	—	36	3	+33*	—	—
Systolic Heart Murmur	59	20	+39*	22	9	+13	−37	−11
Dental Caries	87	82	+ 5	81	74	+ 7	− 6	− 8

* Significant difference P = <0.01

† Women who had been pregnant within the previous 2 years

of the gums, and perifolliculosis was significantly higher in recently pregnant women.

If each age and sex group is compared separately with women who had had a recent pregnancy, it was found that in 1944, adult men had the highest incidence of conjunctival injection, while in both surveys the incidence of thickened conjunctivae and of redness, swelling and recession of the gums increased with age. Consequently, the frequency with which these signs were encountered in women cannot be attributed to recent pregnancy.

In the 1948 survey, findings in women who had been pregnant within the previous two years could be compared with those of other women, most of whom had had more remote pregnancies. The only statistically significant difference observed was in thickening of the conjunctivae. However, recently pregnant women had more follicular keratosis, perifolliculosis and bleeding gums than did the other women, while the latter showed a higher incidence of conjunctival injection, angular stomatitis and redness of the tongue.

In the group of recently pregnant women, there were 21 in the 1944 survey, and 17 in the 1948 survey, who were either again pregnant or who were lactating at the time of examination.

The incidence of physical evidence suggesting deficiency disease was the same in these women as in others who had been pregnant within the previous two years.

The data discussed above suggest that recent pregnancy may have led to an increase in the incidence of magenta tongue, atrophy and hypertrophy of the lingual papillae, fissures of the tongue, and systolic cardiac murmurs in persons examined in 1944, and perhaps to an increase in bleeding gums and perifolliculosis in 1948. All of the signs which may have been influenced by pregnancy in 1944, except systolic heart murmurs, are often associated with vitamin B-complex deficiency. The changes noted in 1948 may possibly be ascribed to vitamin C deficiency. Between 1944 and 1948, the dietary intake of thiamine, riboflavin and niacin increased, while that of ascorbic acid remained the same or perhaps decreased.[2-3]

The improvement in nutrient intake between 1944 and 1948 was associated with a decrease of 15 per cent or more in the incidence of the following signs in women who had had a recent pregnancy: nasolabial seborrhea, conjunctival injection, angular stomatitis, abnormalities in the lingual papillae, magenta tongue, fissures of the tongue and systolic heart murmurs (Table 2). In the other population groups, a similar decrease was noted in the incidence of nasolabial seborrhea and abnormalities of the lingual papillae, a lesser decrease in magenta tongue, and no change in the other findings. The incidence of follicular keratosis and bleeding gums increased slightly in recently pregnant women, and decreased slightly in other groups.

Seven women who were members of the recently pregnant group in 1944 were members of the same group in 1948. Examination in the second survey showed a 50 per cent reduction in signs possibly related to vitamin B-complex deficiency with no change in the incidence of dental caries, abnormalities of the gums, and follicular keratosis.

The increase in the dietary supply of thiamine, niacin, and riboflavin between 1944 and 1948 appeared to bring about more improvement in nutriture in women who had recently been pregnant than in members of other population groups. At the 1944 level of intake, pregnancy appeared to increase vulnerability to vitamin B-complex deficiency as judged by clinical criteria. In 1948, there was less divergence of findings in recently pregnant women from those in other population segments, with the exception of certain changes in the gums and skin. The dietary supply of ascorbic acid in 1948 may have been sufficiently low for recent pregnancy to initiate manifestations of ascorbic acid deficiency.

The influence of numerous pregnancies on maternal nutritional status was evaluated in both the 1944 and 1948 surveys. In the 1944 report [1] findings obtained in each woman were examined in the light of certain arbitrarily chosen criteria and a diagnosis of apparent, suggestive, or no deficiency of iron, protein, or certain vitamins was made. In view of the nonspecificity of many clinical findings and the difficulty of weighting a given abnormality as evidence of specific malutrition, another system of evaluation has been applied in this report.

Physical findings which have often been ascribed to deficiency of vitamin A, the vitamin B-complex, or ascorbic acid were grouped in these respective categories. The incidence of such findings was determined in women who had had 1 to 3, 4 to 6, and 7 or more pregnancies and the total incidence relative to each category was expressed as number of signs observed per subject. Table 3 gives the findings and indicates the signs ascribed to the several categories. The incidence of findings which may be

TABLE 3

Relationship of Signs Suggesting Deficiency of Certain Vitamins to Number of Pregnancies

Possible Deficiency	1944—Number of Signs per Person *			1948—Number of Signs per Person *		
	1–3 Pregnancies (13 women)	4–6 Pregnancies (16 women)	7 or more Pregnancies (10 women)	1–3 Pregnancies (16 women)	4–6 Pregnancies (11 women)	7 or more Pregnancies (9 women)
Vitamin A	0.46	0.56	1.10	0.75	0.64	0.44
Vitamin B-Complex	3.51	6.38	4.30	2.13	2.64	2.89
Ascorbic Acid †	0.92	2.07	1.71	1.73	3.00	2.71

* All figures in the table represent the mean number of signs observed per patient examined. The signs used as suggestive evidence of deficiency were: Vitamin A: follicular keratosis, xerosis of skin, night blindness; Vitamin B-complex: nasolabial seborrhea, thick pigmented pressure points, circumcorneal and conjunctival injection, angular stomatitis, cheilosis, atrophy or hypertrophy of lingual papillae (3 grades), redness, magenta color, swelling and fissures of tongue, calf tenderness, absent Achilles reflexes, loss of vibratory sensation at malleoli, motor weakness, plantar dysesthesia; Ascorbic acid: redness, swelling and bleeding of gums, purpura and, in the second survey, perifolliculosis.

† Women who were edentulous (5 in each survey) were omitted from this calculation.

related to vitamin A deficiency increased slightly with the number of pregnancies in 1944; decreased slightly in 1948. The incidence of signs suggesting vitamin B-complex deficiency was highest in the group with 4 to 6 pregnancies in 1944, while in 1948 a small increase in incidence occurred as the number of pregnancies increased. In both surveys, the incidence of signs possibly related to ascorbic acid deficiency was lowest in women who had had 1 to 3 pregnancies, and highest in women who had had 4 to 6 pregnancies.

A similar evaluation was made of the effect of age on the incidence of signs commonly ascribed to deficiency of certain vitamins. There appeared to be no relationship between age and findings suggesting vitamin A deficiency. In 1944, the incidence of signs relative to vitamin B-complex deficiency was higher between the ages of 26 and 36 than in other age groups, while in 1948 the incidence varied irrespective of age. In 1944, most of the women who were 26 to 36 years of age had had 4 to 6 pregnancies and, as previously noted, the incidence of signs of vitamin B-complex deficiency was highest in this group.

The incidence of signs often ascribed to ascorbic acid deficiency showed a slight tendency to increase with age. This was probably due to the inclusion of gum changes in this category since, when all population groups were considered, abnormalities of the gums were found to increase with age. While ascorbic acid is only one of many factors affecting the condition of the gums, such changes were included in nutritional evaluation in view of the low intake of ascorbic acid in this population group.

The above findings suggest that in both surveys, the incidence of signs related to vitamin B-complex deficiency tended to be higher in women who had had many, than in those who had had few pregnancies; the incidence of signs suggestive of vitamin A nutrition was not affected by the number of pregnancies; and the incidence of signs possibly related to ascorbic acid deficiency increased somewhat with the number of pregnancies and also with age. The significance of these trends cannot be determined in view of the small number of persons included in each group. However, the findings appear to be of sufficient interest to warrant similar evaluation of larger groups.

The relationship of findings in laboratory tests to the number of pregnancies was also studied. Mean levels of vitamin A, hemoglobin, and protein in the blood were essentially normal regardless

TABLE 4

Vital Statistics — Newfoundland 1940–1947

Year	Crude Mortality Rate (per 1,000)	Crude Mortality Rate Pulmonary Tuberculosis (per 100,000)	Infant Mortality Rate (per 1,000 Live Births)	Infant Mortality Rate (St. John's) (per 1,000 Live Births)	Stillbirths (Per 1,000 Live Births)
1940	11.8	150	91.0	74.0	42.2
1941	12.5	134	97.7	102.0	45.2
1942	12.3	135	97.0	107.5	40.5
1943	11.4	124	93.5	111.0	39.6
1944	12.3	134	101.0	117.0	42.3
1945	10.4	114	74.2	92.0	37.6
1946	10.5	101	76.3	77.0	41.1
1947	—	—	—	61.0	27.0

of the number of previous pregnancies. The urinary excretion of thiamine and N′-methyl nicotinamide after a test dose of 5 mg. of thiamine and 50 mg. of nicotinamide was likewise normal.

The concentration of ascorbic acid in the serum averaged 0.41 mg. per 100 ml. in recently pregnant women, while the level at the first quartile was 0.11 mg. per 100 ml. Fifty-five per cent of the women who had had 4 to 6 pregnancies had ascorbic acid values in the lowest quartile, while 23 per cent of women with fewer or more pregnancies had values in this range.

The concentration of carotene in the serum in women who had had 1 to 3, 4 to 6, and 7 or more pregnancies averaged 76, 71, and 33 micrograms per 100 ml. and the concentration of free riboflavin, 1.37, 1.08, and 1.07 mg. per 100 ml., respectively. The mean excretion of riboflavin in the urine in 4 hours after a 5 mg. test dose, was 1.53, 1.45, and 1.30 mg. in the respective groups. The above trends suggest that pregnancy may have influenced findings relative to carotene and riboflavin, but the sample is too small to permit conclusions.

It is of interest to examine certain vital statistics * in Newfoundland prior to 1944, when a comprehensive nutrition program was initiated, and since that date (Table 4). A reduction in the crude mortality rate, the mortality rate from tuberculosis, the infant mortality rate, and the stillbirth rate has occurred since 1944. Nutrition is, of course, only one of many factors which may have influenced these findings. A tuberculosis detection program was initiated in 1945. This program may, however, have increased rather than decreased the number of deaths reported as due to this disease, since in outlying districts recording has often been inaccurate due to the necessity of persons other than physicians making such reports.[3] The decrease in the incidence of stillbirths and in the mortality of infants under one year of age is particularly striking. It seems probable that provision for more adequate nutrition has played an important role in this improvement.

DISCUSSION

Data obtained in recent nutrition surveys in Norris Point suggest that when the dietary intake of certain nutrients is low, pregnancy leads to an increase in the prevalence and severity of nutritional deficiency. In 1944, signs suggesting vitamin B-complex deficiency were observed more frequently in recently pregnant women than in other population groups. At this time, the average daily intake of the B vitamins was estimated to be: thiamine 0.65 mg.,

* These statistics were made available through the courtesy of Dr. James McGrath, Assistant Director Medical Services, Department of Public Health and Welfare, St. John's, Newfoundland.

riboflavin 1.0 mg., and niacin 10.4 mg. In both 1944 and 1948, there was some evidence that the incidence of red, swollen, bleeding gums, and perifolliculosis, signs possibly related to ascorbic acid deficiency, was increased by recent or repeated pregnancy. The intake of ascorbic acid was low in both years and in 1948 was estimated to be less than 10 mg. daily in one-fourth of the subjects.

In the second survey, when the thiamine, riboflavin, and niacin content of the average diet had increased to an estimated level of 1.17, 1.33, and 13.2 mg. daily, respectively, the influence of pregnancy on nutritional status was less definite. Women who had been pregnant within two years showed only a few more signs suggesting deficiency of the B vitamins than did other persons, and physical evidence pointing to vitamin B-complex deficiency was only slightly more common in women who had many, than in those who had had few pregnancies.

The decrease in the incidence of signs of vitamin B-complex deficiency between 1944 and 1948 demonstrates the value of certain public health measures, particularly the enrichment of flour with B vitamins, in improving nutritional status. It is interesting to note that the group showing the highest incidence of nutritional deficiency in 1944, namely, women who had had recent or frequent pregnancies, showed the largest benefit from these measures. The improvement in health as indicated by certain vital statistics provides corroborative evidence of the value of the nutrition program in Newfoundland. Of particular interest is the concurrent reduction in infant mortality and stillbirth rates as nutriture improved.

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Problems and Methods in Nutrition Services for Pregnant Women*†

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IT is a generally accepted fact today that environmental factors operating through the mother may affect the course of embryonic development and fetal growth and in this way modify the outcome of genetic potentialities. Nutrition is undoubtedly one of these environmental factors which merits important consideration in all prenatal care programs. It is for this reason that we have chosen to discuss ways in which it may be possible to improve the practical application of already existing knowledge in this important field. In so doing, the hope is also entertained that more of those concerned with the nation's prenatal care programs everywhere will wish to see that the nutrition of the pregnant woman, as it may concern herself and her unborn child, receives special attention. In many areas practical application lags far behind existing knowledge. It is our belief that if this knowledge is utilized to better advantage in our prenatal care programs, possibilities exist which may clarify further some of the research findings of the various prenatal nutrition studies which have been widely discussed in recent years and about which considerable controversy still exists.

Every effort should be made to apply those procedures which might further reduce maternal and infant mortality and might allow future generations more of the rewards which come from sound physique. We need still to reëmphasize the fact that the life of the child begins with conception, not with birth. At birth, he already has gone through a nine month period of extremely rapid growth and development, which, if not safeguarded by a consideration of the mother's nutritional state and diet, as well as by consideration of her environment from other important standpoints, may mean that the infant has suffered in some manner which never may be completely overcome.

Therefore, rather than review the already existing research findings which are available in the literature,[1-3] we should like to consider the problems inherent in providing the best possible nutrition services in our prenatal care programs and the methods by which these may be accomplished. Present evidence suggests that such prenatal nutrition services might accomplish:

A. For the mother
1. Improved health during pregnancy
2. Fewer complications, including less toxemia
3. A safer delivery
4. Lowered maternal mortality

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5. Better health following delivery
6. A greater likelihood that she can nurse her infant and that the quality of her milk will be improved

B. For the new-born infant
1. Decreased mortality
   a. Fewer stillborn infants
   b. Fewer neonatal deaths
2. Better growth and development and decreased morbidity
   a. A lessened incidence of prematurity
   b. Improved physical condition at birth and during infancy
   c. A lessened incidence of congenital malformations, provided Warkany's work with animals is transferable even in part to man

An educational program to improve the nutrition of all women of childbearing age so that they may enter pregnancy in sound nutritional state, together with practical dietary advice as early in pregnancy as possible, should be our long-range nutritional goal in all prenatal care programs. However, the personnel required for such large overall services is expensive and scarce and progress toward such a goal naturally is slow. Hence, results from such a broad program emerge slowly and often are not sufficiently stimulating and dramatic to maintain the clinician's curiosity and interest in possible future progress. For this reason, in any new field it is often better to concentrate one's efforts on a smaller segment of the problem, at first selecting an area where results might become apparent within a relatively short space of time.

With this in mind we have in the past two years altered considerably the nutrition consultation services offered in the Out-Patient Department of the Boston Lying-in Hospital. For the past year, nutrition consultation has been available in the Toxemia Clinic to all patients referred there. All women who are referred to the Toxemia Clinic are seen by the obstetrician (Dr. Kirkwood) in charge of that clinic. He refers each patient to one of the nutritionists in attendance, with recommendations as to the dietary instruction he wishes given to the patient. The nutritionist then interviews the patient as to her present food habits. She concerns herself with learning the usual dietary habits of the patient. Even in corrective clinic teaching, where detail is not as essential as in a research nutrition history, we still feel that it is necessary to know the *average* or *usual* intake for the period in which we are interested. A "cross check" is taken carefully, as described in a previous publication.[4] At the beginning of the interview other pertinent data about the patient's mode of living, size of family, economic status, amount of money spent for food, eating habits, and the like are collected. When the picture of this patient's mode of living, economic status, and usual food habits is completed, the nutritionist instructs the patient about the diet which she must have if her eating habits are to meet the doctor's recommendations. As the nutritionist explains the diet recommended, she tries to motivate the patient by giving the reasons for any necessary changes in her usual food habits so that the patient will be willing to coöperate to the limit of her ability. In nutrition consultation work of this nature, the "cross check" sheet has been found to serve ideally as a basis from which to teach the patient about her diet. The diet is adjusted, wherever possible, to conform to the patient's ways of life, economic background, etc. The diets used in this clinic are high protein diets which are controlled at a normal caloric level or, in some instances, at a slightly lower level. The sodium content of the diet is controlled as the case may necessitate. All of these diets are made up from the basic foods used in our normal pregnancy diet as described in the folder *Daily Diet During Pregnancy*,[5] the variety and amount of food being limited by the allowances of calories and sodium.

The first interview takes approxi-

mately three-quarters of an hour; the time varies, of course, according to the ease with which the patient can give the desired information, the amount of corrective teaching needed, and the difficulties encountered in making the dietary instruction understandable and usable to the patient. Sometimes considerable time and effort are consumed in persuading the patient that certain changes are essential to her own welfare as well as to that of her unborn infant. We have found that only in this manner can we hope to have the patient's fullest coöperation. She goes home with a real understanding of her diet and the reasons for following it. In few instances does one have to spend much time with her at subsequent interviews. When she returns to the Toxemia Clinic, usually every week or every two weeks depending upon her condition, her urine, blood pressure, and weight are checked before she sees the clinic doctor. If she shows no albumin, no elevation of the blood pressure, and her weight gain is correct for her, she waits to see the doctor; if, however, she displays any undesirable symptoms she is interviewed first by the nutritionist and a report sent in to the doctor as to how well she is carrying out the dietary regime recommended. The doctor then interviews the patient, including a discussion of her dietary difficulties, and impressing upon her the importance of her diet. She then returns to the nutritionist for instruction as to necessary changes in diet or for further clarification of her present regime. This clinic routine has made for close coöperation between the doctor and the nutritionist which the patient recognizes. She seems to appreciate the value of such coöperation to her own welfare, and in the majority of cases responds well to it.

We have described this nutrition consultation service as it operates in our Toxemia Clinic at the Boston Lying-in Hospital (a relatively small toxemia clinic); you naturally want to know whether or not such a service has produced any measurable benefits in this relatively short period of time. We wish first to make it clear that any results which may have been attained must be considered to be results of the entire prenatal service of this clinic of which the nutrition service is an integral part. Factors other than the nutrition consultation service have unquestionably operated to improve the prenatal care given these patients. During this same period the direction of the care of the patients in this clinic has been concentrated in one obstetrician; a medical resident especially trained in the clinical and laboratory aspects of cardiovascular-renal disease has been present; newer laboratory procedures have been available and a closer understanding with the personnel in charge of referring general clinic patients has led to earlier discovery of symptoms of toxemia. These and less apparent factors must be considered, as well as many factors outside the clinic, such as changing economic and social conditions. In fact, we all recognize that the incidence of toxemia in the United States has decreased markedly in recent years. Nevertheless, it still remains one of the leading causes of maternal mortality. It appears to us that the nutritional control of these patients is one of the factors in the control of toxemia and as such has contributed measurably to the accomplishments of this clinic in the past year. It is our impression that during this period:

1. There have been fewer admissions to the Toxemia Ward of the Hospital during the course of pregnancy.
2. Fewer women in the Toxemia Clinic developed the severe grade of pre-eclampsia (grade II).
3. More women from the Toxemia Clinic were delivered nearer to term.
4. The infants born to these women had a higher average birth weight (the majority over 7 lbs.) than might have been expected,

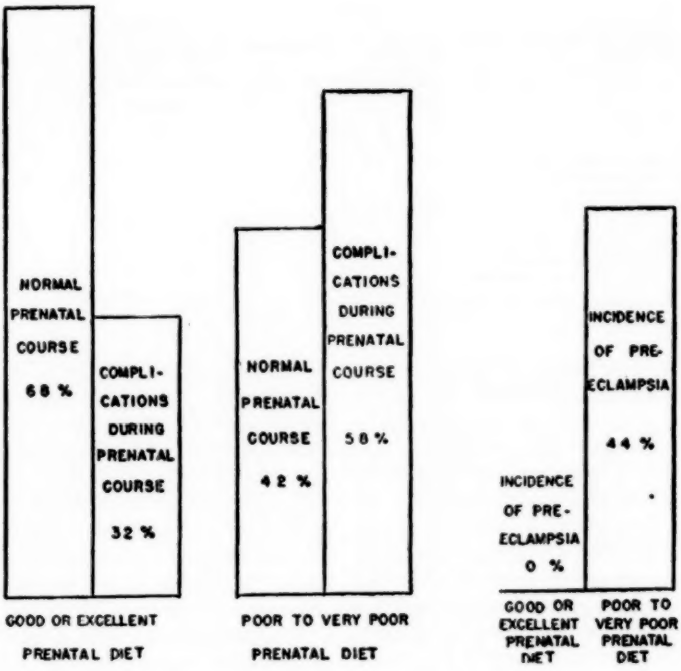
NORMAL PRENATAL COURSE 68 %
COMPLI-CATIONS DURING PRENATAL COURSE 32 %
GOOD OR EXCELLENT PRENATAL DIET
NORMAL PRENATAL COURSE 42 %
COMPLI-CATIONS DURING PRENATAL COURSE 58 %
POOR TO VERY POOR PRENATAL DIET
INCIDENCE OF PRE-ECLAMPSIA 0 %
INCIDENCE OF PRE-ECLAMPSIA 44 %
GOOD OR EXCELLENT PRENATAL DIET
POOR TO VERY POOR PRENATAL DIET

FIGURE 1

Courtesy of *American Journal of Obstetrics and Gynecology* 46:38 (July), 1943.

since toxemia and prematurity are associated.

5. The average weight gain in the women who have gone to term has been approximately 20 lbs.
6. Measurable help seems to have resulted in some specific cases of previous toxemic disaster.

I should again emphasize that these are merely our impressions of the results to date; we cannot draw any conclusions at this time. We are extremely interested in this work and, because of our interest, have presented this preliminary report. We plan to follow the nutrition work in the Toxemia Clinic even more carefully in the coming year.

In a consideration of the possible value of this nutrition consultation service for all patients in our Toxemia Clinic, it would seem pertinent to review certain recent research findings. My thoughts immediately turn to the work one of us (Mrs. Burke) did with Dr. Harold M. Teel at the Boston Lying-in Hospital some ten to fifteen years ago. A group of approximately 100 pregnant women, including a number of women who had had toxemia at a previous pregnancy were studied. No patient was admitted to the group after the end of her third month of pregnancy. These women were offered the best possible prenatal care available at that time, including nutritional advice which was followed in the majority of cases because of the close coöperation between doctor and nutritionist in the work. The diet recommended to these women included approximately 100 gm. of protein and in other ways followed closely the dietary regime now recommended. When

TABLE 1

Condition of Infant at Birth Following 28 Pregnancies Complicated by Pre-Eclampsia

(From study of 216 pregnancies, Harvard School of Public Health series)

Condition of Infant at Birth	*Number of Cases*	*Per Cent*
Stillborn	2	7
Premature with congenital defect	3	11
Premature without congenital defect	4	14
Immature (5–1 to 6–8)	9	32
Condition "fair" or "poor" for other reasons	5	18
Total failing "good" rating	23	82
Infants in "good" condition	5	18
Infants in "excellent" condition	0	0

Courtesy of Federation Proceedings 4:278 (Sept.), 1945.

the study was concluded there had been no case of toxemia within the group. No one then, as now, wished to draw any conclusions, and it certainly was impossible to say that any specific nutrient in the diet was responsible. Attention was called at that time to the importance of protein during pregnancy, the increased requirement, the fact that many women eat diets surprisingly low in protein normally which, because of the increased requirement of pregnancy, becomes markedly deficient. Such a deficiency, if prolonged, may result in lowered serum protein with attendant edema and other undesirable conditions for both mother and fetus. The role of protein in relation to toxemia has long been and still is a debated problem.[1]

In our study of 216 pregnant women, a statistically significant relationship was found between the general mean dietary rating for pregnancy and the incidence of pre-eclampsia (Figure 1).[6] Among the women whose diets were poor to very poor the incidence was 44 per cent while no toxemia occurred among the women whose diets were rated good or excellent; the incidence of toxemia among the women whose diets were rated "fair" was 8 per cent.

A large percentage of the "poorest" infants, infants who were stillborn or who died shortly after birth, or were premature or functionally immature, were in this poorest diet group and a considerable number of them were born to toxemic mothers (Table 1).[7] In presenting these figures it must be understood that we do not claim that nutrition operates as an etiologic factor in relation to toxemia. However, it appears that control of the nutritional state of the pregnant woman is an important factor in relation to the prevention and treatment of toxemia.

The method used in offering nutrition consultation services to all patients in the Toxemia Clinic of the Boston Lying-in Hospital has been presented. We feel that a nutrition service of this nature may prove to be of value in the prevention and treatment of toxemia. It is our hope that similar nutrition services may be tried in other toxemia clinics to provide a volume of cases which will demonstrate more clearly its potential value.

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Chronic Illness Survey

The National Commission on Chronic Illness has under way a nation-wide survey of present activities and plans in chronic disease control. A model community survey plan, developed for use by communities in studying their needs and facilities, is being tested in a number of communities during the summer, then it will be used throughout the country.

The commission was founded in 1949 jointly by the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association. Its director is Morton L. Levin, M.D. In addition to support by the New York Foundation and the American Medical Association, it is being supported by a number of agencies interested in different aspects of chronic illness, among them the American Cancer Society, American Heart Association, National Foundation for Infantile Paralysis, National Society for Crippled Children and Adults, and National Tuberculosis Association.

At the recent second annual meeting of the commission, state and local plans for coördinated community action on chronic diseases were discussed. A number of central services for the chronically ill were reported, among them one in Chicago sponsored by the Institute of Medicine, others in Milwaukee by the Council of Social Agencies, in San Francisco by the Community Chest. Many states, usually through the state health departments, are taking special responsibility for developing chronic disease programs both on the preventive level and to organize treatment and rehabilitation services. A summary of current facilities in this field is found in a May 16, 1950, news release of the Commission on Chronic Illness, 535 N. Dearborn St., Chicago 10.

Vocational Rehabilitation*

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THERE are two broad approaches to solving the problem of disability. Anyone will admit the soundness of *prevention*. Constant improvement in medicine to prevent disease itself and to prevent or minimize the residual effects of illness is of concern to physicians, nurses, medical schools, chemists, and others throughout the country. New techniques, new drugs and new methods of disease control are being discovered, proved, and put into use with gratifying frequency. Constant battle is thus being waged against disease as a crippler and killer of man.

Safety education, safety engineering, and improved safety practices on highways, in factories, on the farm, and in the home are aimed at fewer accidents and thus fewer disabilities. Although our performance in the area of safety leaves much to be desired, the situation would be much, much worse were it not for the constant reminder to be safe, first.

Better health examinations of children are revealing potentially disabling conditions of speech, otological problems, malnutrition, and emotional disturbance at a stage when treatment by medical specialists, therapists, and nutritionists will do the most good. Yet we know that in spite of all we can do in the way of improved health, medical care, and safety, tens of thousands of persons are added to the ranks of the disabled each year.

The other approach which is complementary to preventive effort is the rehabilitation of those who become disabled. Rehabilitation has been defined as a process which restores the disabled person "to the fullest physical, mental, social, vocational, and economic usefulness of which he is capable." This is both a definition and a statement of goals.

Fire, flood, and tornado are spectacular in their destructiveness. As man and nature combine forces to reëstablish a normal manner of life, this rebuilding process is usually long and laborious and receives scant attention except by those most directly concerned. Similarly, when disease, accident, and war injury leave their marks on their human victims, their "comeback" is by a long, hard road. These disabled persons do not lose just a leg, an arm, or an eye. They lose their ability to walk, to work, to communicate with their fellows, to live creatively and happily.

Organized effort to restore the handicapped to their maximum usefulness is called rehabilitation. It may apply to services to children, to the aged, or to injured workmen. Whenever there is a central goal of restoring the individual to an employed or more advantageously employable status, the term, vocational rehabilitation, is used.

The past five years has witnessed tremendous advancement in all phases of rehabilitation. Pioneered by the

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work of rehabilitation specialists in the service hospitals and in the Veterans Administration, a greatly broadened program is now in process of development employing, for both veteran and civilian, new techniques, improved prostheses, and a host of specialized personnel, and extending to all types of the disabled.

The coöperation of many different institutions, professions, organizations, and types of services is essential for complete and effective rehabilitation programs. Physical restoration, hospitalization, prosthetic appliances, psychological services, vocational counseling, training and selective placement must be brought together in such a way as to present a unified, common sense approach to an individual problem. It can be readily seen that the provision of these services involves many professional groups: physicians, nurses, therapists, psychologists, vocational counselors, vocational teachers, and placement specialists. Some persons may need a limited service while others need "everything in the book." The challenge today is to put into effective use the knowledge and skills already learned to the benefit of larger and larger numbers of the disabled.

Thus has evolved the concept of total rehabilitation. This concept involves four definite steps as follows:

1. A complete rehabilitation diagnosis — The starting point in such a diagnosis is medical evaluation of the patient with a definite goal of maximum useful activity in mind. A thorough general medical examination as a minimum, to be followed by specialists' examinations if required, reveals both the patient's limitations and his possibilities for improvement. Psychological, vocational, educational, and sociological factors are also evaluated to complete the pattern which the individual program of rehabilitation should assume. Based on these findings, a rehabilitation plan is developed outlining all the services to be provided to achieve a total rehabilitation.

2. Physical restoration — Many persons are so completely incapacitated that any thought of employment or even self care is out of the question unless physical improvement and functional re-training is effected. Hospitalization and surgery, physical and occupational therapy, limbs, braces, hearing aids, and speech training are all utilized to enable the patient to reach his maximum physical efficiency.

3. Running concurrently with physical restoration or as soon thereafter as is practical, vocational training is often necessary. Having a salable skill serves to reduce the handicapping effect of the disability and puts the client in a favorable position to compete with the non-handicapped for jobs.

4. Selective placement and follow-up — The rehabilitation job is certainly not finished until the prepared client is working satisfactorily on a job that is suitable to his capacities and in which he can work without danger to himself or others. This can be accomplished only through an individualized placement program which matches the known capacities of the applicant to the specific requirements of jobs. The placement process extends to the necessary follow-up to insure good acceptance of the situation by both employer and employee.

This concept of total rehabilitation which takes the patient from his bed to a job has gained wide acceptance from members of the medical and related professions. It states exactly the philosophy underlying the programs of official rehabilitation agencies.

A year ago in a public report, the Federal Security Administrator outlined major health goals for the next decade. I quote one of these:

"Sixth Health Goal: To rehabilitate the 250,000 men and women who be-

come disabled through illness or injury every year so that they can be restored to the most nearly normal life and work of which they are individually capable." [1]

At this time it is estimated that 100,000 disabled persons are being fully rehabilitated each year. Seventy per cent of these cases are handled by the 51 general rehabilitation agencies and 36 agencies for the blind operating in the forty-eight states, the District of Columbia, Hawaii, and Puerto Rico. The remaining 30 per cent are served by the Veterans Administration and private resources.

Despite this accomplishment, rehabilitation effort still falls far short of the need. Our citizens are being disabled at more than twice the rate at which they are being rehabilitated. In addition, the program scarcely reaches those who are in greatest need of its services — the severely disabled.

Throughout the country the feasibility of rehabilitating the handicapped is being demonstrated. There is convincing proof that for each dollar spent on rehabilitation a return in future earnings of several times this amount may be expected. To see a disabled person sit in idleness and dependency, when counseling, medical treatment, and training would restore him to physical and economic competence, is a denial of the finest tradition of any profession and of the American way of life.

If we face this problem honestly, we must conclude:

1. That rehabilitating the handicapped is not only the most humane but also the most economical solution at hand. The price of maintaining a dependent handicapped person one year is often greater than the total cost of his rehabilitation. A single, nonrecurring expenditure will thus obviate years and years of welfare or family support.

2. Present efforts in rehabilitation are only scratching the surface. Whole categories of the disabled are scarcely being reached, among them being the cerebral palsied, speech defectives, the mentally ill and mentally deficient, cardiacs, and the severely disabled from whatever cause.

3. If we are to meet the rehabilitation needs of the disabled in a substantial manner there must be a major increase in funds, facilities, and trained personnel.

4. There is need for better coördination of effort in behalf of the disabled. Common goals, elimination of duplication, and a free interchange of services will make our present resources go further.

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Team Work in Rehabilitation*

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THE problem of rehabilitation of an individual involves a twofold effort—on the one hand, to lessen and minimize through medical treatment his physical handicap, and on the other, to help the individual develop his strengths and his abilities so that he is better equipped to meet and live on comfortable terms with the physically able of the community.

Although in theory we have recognized for a long, long time that these two efforts must go together if rehabilitation is to be achieved, too often in practice we have tended to place our emphasis on lessening through medical care the extent of the disability and have forgotten that the growing and strengthening of the person as a whole is equally important. We have all known an individual with nearly overwhelming handicaps viewing the world with equanimity and apparently secure in his knowledge of his ability to provide for himself and to give and take in his relations with others. This individual, whom we call "well adjusted" has been able to come to terms with his disability—to recognize his value as a person, his strengths, his abilities. Of course, he has a handicap. Of course, the handicap is a limitation; but he sees that it is only a part of him, not the whole—and he is meeting life in terms of his strengths rather than in terms of this one weakness.

We have all known an individual with a much more minor handicap who views the world with timidity, who can give little of himself because he doubts deeply his own intrinsic worth and the value of what he can give. To this fearful "poorly adjusted person," his handicap overshadows all his strengths and abilities. It looms as the most important thing about him. He meets the world in terms of how the world will respond to his crippled leg, not in terms of how it will respond to him as a person—and because he lives in terms of his disability, he can give little to the community of his real strengths and abilities.

Rehabilitation includes the whole process of helping the child or adult with a physical handicap. It is not something that we can separate out into steps, some of which may be accomplished later. We either help, or fail to help, in this process of rehabilitation in all of our contacts with him.

We form a big and important part of the life experience of the handicapped individual—not only because we can specifically offer him medical care or special training, but because too our response to him is indicative of the way the world about him will respond to him as a "crippled person." If we focus our attention only on his leg and getting treatment for it and looking after it as a kind of goal in itself—then in the process we fortify his own unhappy conviction that that leg is the most

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important thing about him, that the world never will be able to see beyond it to the kind of a person that he really is. Or, we can tell him about the services that our program has to offer, meet him in clinic, see him through treatment in a way that shows that we recognize and appreciate what this experience means to him as a person, that we know the trials and tribulations he has been through, and that we recognize the courage and the stamina that he has had to meet a very difficult situation. He is bigger and more important than the leg—he can see that—and if as a person he was strong enough to go through some of the fears and unpleasantness of treatment, he will feel surer of his own ability to face and take on the next difficulty. Besides, we have seen him as having strengths and value as a person —and we represent a part of the world about him—so perhaps some others will be able to see beyond his leg, too.

Our helping him to grow stronger in his ability to meet life without fright or apology must be woven into all of our relations with him, and not separated off into a rehabilitative period during which we give him vocational skills that provide added ability but that cannot compensate for a real doubt of his own worth. At whatever point we meet him, we begin the rehabilitating process of recognizing him as a person with strengths and weaknesses, and as a person, with an awareness of his own capacity to handle his own problems, difficult as they may be, and to make a real contribution to others.

Since his rehabilitation depends not only on the extent of his physical handicap but on his attitudes toward himself, the feelings his family has toward him and his disability will influence his rehabilitation. Of all the people around him, the members of his family are the closest and most meaningful, and he will tend to pass judgment on himself in terms of their evaluation of him. If they reject him or over-protect him, he will feel that the crippled leg is the all important thing. If he can contribute something of himself to the family and find that they value it, he will feel that he can contribute in his other relationships to people and to the community without doubt and fear that his contribution will be rejected because of the condition of his leg.

Because of the part the members of his family play in his life adjustment, the rehabilitative process with a child or an adult must be extended to them as well. We need to know what his relation with them means to him, what he and his handicap mean to them, whether they are able to value him as a person. Many factors may influence both him and his family in their attitude toward him and his handicap. How does the handicap affect them? If he is a child, is he an only child or one among many? Have his parents focused all of their own unfulfilled aspirations on him? Have they hoped he would be a football star? Have they wanted him to be the perfect child of their dreams? Was he really wanted and, if he was not, is it difficult for the parents not to feel guilty and uncomfortable about him, not to feel that in some way their own wishing him away is reflected in his physical damage? The extra care that he requires from an already overburdened mother may make her resent his handicap or see it as an overwhelming problem.

Or is this person with a physical disability the breadwinner in the family? If he became disabled suddenly, do his wife and children see him as a different and changed man, a man who is responsible for their economic uncertainty and lowered standard of living, a person who is less adequate, since he can no longer carry all of the responsibilities that he previously assumed as head of the household? He, too, may feel that he has lost status, that he is responsible for the hardship his family is facing,

that he is failing both as a husband and a father.

The mother who has a physical difficulty may find herself unable to function as a housekeeper or carry the usual burden of child caring and this, too, may affect her relations with the other members of the family. In turn, the added burden of keeping the home going may be irksome to the father. The children may be confused and upset by the change in what they may expect from their mother, and she, in turn, may question whether she will continue to have a real place in the home and in their affections, or whether her physical disability will outweigh all of the other things she has to give.

The family needs help in this process of rehabilitation. Those around the child or adult with a physical disability have problems and fears and doubts and discomforts with which they need help before they can achieve a happy adjustment as a family unit. If we wish to help the patient by more than lessening his handicap medically, if we wish to help him in his feeling of adequacy as a person, we must also bring his family along in their ability to recognize his strengths and capacities and to lose some of their fear of his disability.

The pressure of community feeling also weighs heavily on the process of rehabilitation. The individual himself can do much to make the community less self-conscious about his handicap, less doubtful of his contribution. Through his own feeling of adequacy, through proof that he has a contribution to make, he can gain recognition of his worth as a person. But it takes both strength and courage because of the deeply ingrained feeling of so many individuals in the community that physical disability does make a different kind of human being, and that the physically handicapped person is inadequate beyond the actual extent of his disability. Here again we all have a contribution to make by helping the community to accept the individual and what he has to offer, and by viewing his disability in the perspective of his total personality. The relief of pressure from the doubt of the community could do much to make all of our rehabilitative efforts more successful. Great advances have been made in this direction through the continuous process of proving that physically handicapped people can function effectively in a wide variety of jobs, but there must be continued efforts at increasing understanding and acceptance before the role of the handicapped person in the community will be a comfortable one.

This whole process of rehabilitation seems to me to be the responsibility of a professional team that includes: doctor, nurse, medical social worker, nutritionist, rehabilitation counselor, physical therapist, occupational therapist, and vocational trainer. From the very first contact that any one of us may have with the patient and his family, rehabilitation should be under way. As a professional team, we need to offer the child or adult not only treatment to lessen his disability, but a chance to develop his strengths and his worth and his feeling of his value as a person, as a part of the family group, and of the community. We can do this in little and big ways throughout the treatment process—by being interested and knowing a little about him and his family before his examination in the clinic; by knowing what this disability means to him and how he feels about the treatment recommended; by recognizing his need to ask questions, the importance of his decisions, the courage it takes for him to say "yes" to surgery; by recognizing his strengths in taking a prolonged course of treatment, in risking what may happen to his family relationships while he is away from home; by understanding and appreciating his fears

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In our focus on the person as a whole, we work together as members of the professional team. The contribution that each of us can make depends on our technical skills and our understanding of this particular individual, what his needs are, what this experience means to him. The medical social worker participates with the team in overall program planning to consider with the other professions the ways in which service may be offered to insure this individualization, to provide in so far as possible for help to the person as a whole, to make each of his experiences in securing the services of the program a positive step through which he is aware of his own strength and capacity and his progress toward productive participation in community living.

In her own field of competence, the medical social worker carries responsibility for offering a specialized service to the patient and his family in helping them with their very real social and emotional problems that may make the physical handicap seem insurmountable. The worker may offer this through direct case work service in helping the individual and his family to come to terms with the disability, through various contacts with him in the clinic, in the hospital, or at any point important to him in the treatment. Out of her knowledge, in addition to this direct service, the medical social worker may offer consultation to other members of the staff in relation to the special problems of the patient.

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Thus the major responsibility of the medical social worker rests in helping the individual patient and his family in facing and working through those social and emotional problems that revolve around his disability, that influence his and his family's attitudes toward it, and toward him, and those emotional responses that interfere with his ability to value himself as a person with something real and valid to contribute to the community that cannot be denied by the presence of a physical handicap. In the rehabilitative process, she works as part of the professional team undertaking the task of rehabilitation—a task that must be shared by each member of the team and at each step in the services offered to the patient if rehabilitation is to be effective.

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The city administration acted favorably upon this recommendation, and the mayor, by executive order, created a Bureau of Health and Hospitals. At the same time he appointed a seven member Board of Health and Hospitals in a manner consistent with the legislation establishing the composition of the county and district departments of health throughout the state of Colorado. The function of the board was described as "to exercise any and all powers and authority delegated by the Manager of Health and Charity."

The possible extent of these powers

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as they relate to health is reflected in the following excerpt from the City Charter:

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The membership of the board at present includes two physicians. This is in conformity with acceptable practice for boards of health, but since both of these physicians are members of the medical staff of the county hospital, which is operated by the bureau, their membership on the board is contrary to commonly accepted principles regarding the structure of hospital boards of trustees.

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The management problems of finance, personnel administration, and space administration are handled in a uniform fashion throughout the entire agency. It has been found relatively easy to adopt budgetary policies and personnel policies which are satisfactory to the operation of both preventive and curative services. This amalgamation of management procedures, however, in no way insures that there will also be an integrated program developed for the entire agency.

To accomplish such an integration, a line and staff type of administration has been developed for the agency as a whole. The senior staff of the agency has been formed into an Executive Council. Membership on the council is held by all department and division directors who have responsibility for planning and executing operating services and educational programs. Certain hospital operating departments are represented on the council by an assistant director. The director of the agency serves as chairman of the council. Before the council are placed all important matters of administrative procedure and program planning. To date the administrator of the agency has found it possible and practical to follow the recommendations of this council.

In addition to the council there is a medical staff structure. At the present time this includes all physicians who serve the therapeutic needs of patients. It seems likely that membership in the medical staff will be expanded to include all physicians providing services anywhere in the agency. A continuous administrative relationship with the medical staff is achieved because the director serves as secretary to the medical staff. Since membership in the medical staff is open only to physicians who are members of the faculty of the local medical school, the medical staff organization serves to link the operations of the entire agency to the medical school.

Under this type of administration certain members of the staff whose primary interest is in the preventive services are afforded an opportunity to assume a professional role in the ad-

ministration of related therapeutic services. The directors of the Divisions of Venereal Disease Control, Tuberculosis Control, and Communicable Disease Control have been placed in charge of the corresponding inpatient and outpatient clinical services. The director of Mental Health Services also supervises the inpatient psychiatric service and educational programs. It has been found possible to bring the well child conferences of the maternal and child health program into a working administrative relationship with the pediatric outpatient clinics of the hospital. The staff in the Division of Health Education is beginning to take advantage of the dramatic incidents of health which require hospitalization to emphasize the importance of general health, prevention of disease, and prevention of accidents. In all these instances the fact that the person responsible for the community preventive services is also responsible for the therapeutic services has at least insured a continuity of practice in the agency as a whole, and in those instances in which therapeutic care is a portion of the individual's whole health problem, has allowed the individual in the community to receive a consistent and well interpreted service directed toward his own need.

On the other hand, there have been some extensions of institutional service into the area of preventive services. Medical social services have been extended to the agency as a whole and made available, particularly, to the director of the Division of Maternal and Child Health, the director of Tuberculosis Control, and the public health nurses. The laboratory and radiological facilities, originally part of the hospital services, now service the needs of the entire agency.

As the program here has developed over the past two years, it seems that one of the most fruitful areas for the merging of preventive and curative functions is in the area of services rendered to the ambulatory patient. Such preventive activities as tuberculosis control clinic operation have long been demonstrated to fit well within the outpatient structure of a medical care institution.

In addition to having easily available to the ambulatory patient the services of the usual types of preventive medicine clinics, it seems advantageous to have strong support from the public health nursing staff, the staff of the Division of Maternal and Child Health, and the services of trained health educators. These services become increasingly important as communities devise means of extending care to patients in their homes. The operation of preventive medicine clinics is enhanced by the greater availability of consultation from other specialists.

We have noted some problems in the combined administration of the preventive and curative services. Quite frequently concern is expressed that a proper distribution of funds between the preventive and curative services be maintained. There is a fear that the large and dramatic aspects of the curative services will tend to embarrass the necessary funding for the preventive services. This can undoubtedly happen. For instance, it has been found necessary to exercise great care in order to protect the public health nursing services of the agency from being overburdened by the demands for bedside nursing service. However, I am of the opinion that joint administration of the program can provide economic security for preventive services. Communities have traditionally been willing to spend from two to four times as much for their tax supported curative services as for their preventive services. It seems to me entirely possible that by interlocking the administration of these programs so that, in effect, they become interdependent, one may secure for the

important thing about him, that the world never will be able to see beyond it to the kind of a person that he really is. Or, we can tell him about the services that our program has to offer, meet him in clinic, see him through treatment in a way that shows that we recognize and appreciate what this experience means to him as a person, that we know the trials and tribulations he has been through, and that we recognize the courage and the stamina that he has had to meet a very difficult situation. He is bigger and more important than the leg—he can see that—and if as a person he was strong enough to go through some of the fears and unpleasantness of treatment, he will feel surer of his own ability to face and take on the next difficulty. Besides, we have seen him as having strengths and value as a person —and we represent a part of the world about him—so perhaps some others will be able to see beyond his leg, too.

Our helping him to grow stronger in his ability to meet life without fright or apology must be woven into all of our relations with him, and not separated off into a rehabilitative period during which we give him vocational skills that provide added ability but that cannot compensate for a real doubt of his own worth. At whatever point we meet him, we begin the rehabilitating process of recognizing him as a person with strengths and weaknesses, and as a person, with an awareness of his own capacity to handle his own problems, difficult as they may be, and to make a real contribution to others.

Since his rehabilitation depends not only on the extent of his physical handicap but on his attitudes toward himself, the feelings his family has toward him and his disability will influence his rehabilitation. Of all the people around him, the members of his family are the closest and most meaningful, and he will tend to pass judgment on himself in terms of their evaluation of him. If they reject him or over-protect him, he will feel that the crippled leg is the all important thing. If he can contribute something of himself to the family and find that they value it, he will feel that he can contribute in his other relationships to people and to the community without doubt and fear that his contribution will be rejected because of the condition of his leg.

Because of the part the members of his family play in his life adjustment, the rehabilitative process with a child or an adult must be extended to them as well. We need to know what his relation with them means to him, what he and his handicap mean to them, whether they are able to value him as a person. Many factors may influence both him and his family in their attitude toward him and his handicap. How does the handicap affect them? If he is a child, is he an only child or one among many? Have his parents focused all of their own unfulfilled aspirations on him? Have they hoped he would be a football star? Have they wanted him to be the perfect child of their dreams? Was he really wanted and, if he was not, is it difficult for the parents not to feel guilty and uncomfortable about him, not to feel that in some way their own wishing him away is reflected in his physical damage? The extra care that he requires from an already overburdened mother may make her resent his handicap or see it as an overwhelming problem.

Or is this person with a physical disability the breadwinner in the family? If he became disabled suddenly, do his wife and children see him as a different and changed man, a man who is responsible for their economic uncertainty and lowered standard of living, a person who is less adequate, since he can no longer carry all of the responsibilities that he previously assumed as head of the household? He, too, may feel that he has lost status, that he is responsible for the hardship his family is facing,

that he is failing both as a husband and a father.

The mother who has a physical difficulty may find herself unable to function as a housekeeper or carry the usual burden of child caring and this, too, may affect her relations with the other members of the family. In turn, the added burden of keeping the home going may be irksome to the father. The children may be confused and upset by the change in what they may expect from their mother, and she, in turn, may question whether she will continue to have a real place in the home and in their affections, or whether her physical disability will outweigh all of the other things she has to give.

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community a greater continuity of preventive services.

There are some problems in determining the eligibility for various services rendered by the Bureau of Health and Hospitals. Classically, the tax supported hospital is responsible only for the medical care of the indigent group; whereas preventive services are more largely available to the community as a whole. However, a majority of the preventive services are rendered to individuals who occupy the so-called blighted areas in the community. Here there is a natural overlap of responsibility also for the therapeutic services. Where such an overlap has not existed, it has been found necessary to determine eligibility for certain services by application of the usual rules of residence and ability to pay.

It must be recognized that the integration which has been accomplished between preventive and curative services represents a relationship of all of the preventive services to a relatively small segment of the curative services which are provided in the community. Such administration does not solve the problem of developing relationships with other hospitals and clinics throughout the community. A certain part of this relationship is facilitated by virtue of the fact that the Bureau of Health and Hospitals is the agency which enforces standards within institutions providing medical care in the community. However, the ultimate solution will probably not come until the community has devised some type of health council to relate the activities of all its health services.

This pattern of integration of preventive and curative services can probably be justified only if it can be demonstrated that it plays a part in strengthening the health services to individuals in the community. Its great value would seem to lie in the fact that illness requiring institutional therapy is an incident in the health pattern of the individual over his entire lifetime. Unfortunately, hospitalization is often the individual's first introduction to the health services of his community. Around the incident of hospitalization an effective system of referral to the preventive services can be devised. On the reverse side, should the hospitalization be an incident in a long-term health problem already known to the preventive services, the continuity of staff between the preventive and curative services assures an optimum use of the clinical facilities in relation to the individual's specific needs.

Good public health practices can exist in the community only with the full support of the members of the community's medical profession. In an integrated program it is possible to have a close association with many physicians in the community through the structure of the medical staff. This association is important, I believe, as a medium for interpreting certain public health problems. The practising physician gathers an impression of the preventive services largely through some related therapeutic service which he himself is responsible for rendering. Through this relationship the practising physicians have been afforded an opportunity to participate in the development of preventive services. With this participation comes an appreciation of the importance of the services provided by the official health agency to the total health of his patient.

The elimination of duplication of personnel concerned with the management functions of budgetary control, personnel operation, routine purchasing, and maintenance allows maximum monies to be put into direct service programs. Joint housing of public health and hospital services is widely advocated. Joint administration facilitates the accomplishment of joint housing.

The operation of a combined program of preventive and curative services is

rather complex. I am confident, however, that the Bureau of Health and Hospitals will be able to sustain its democratic approach in administration and that, with the guidance of the Executive Council and the medical staff, we shall be able to plan sound programs to meet new community needs as well as to sustain the basic elements so necessary in the field of preventive medicine and public health and in therapeutic care to the indigents of the community.

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Career Investigator Program

Research careers in heart disease are being supported by the American Heart Association in order to meet the urgent need for qualified research workers who can concentrate their full time in the heart disease field. According to the program recently announced a few persons of unusual ability and originality, preferably between 35 and 45 years of age, will be selected to work in the institution and on the research project of his own choosing. He must be relieved of all administrative duties and spend not more than 15 per cent of his time in teaching, including ward rounds. He need not do all his work in one institution and may work in foreign countries for brief periods. He may have access to patients but income from that source will be treated as a part of the stipend.

The minimum annual stipend is $12,000; $7,500 additional is made available for technical help, secretarial services and supplies, and the institution receives $1,000 annually for overhead costs. The Career Investigator is under the retirement plan of the American Heart Association, supported in active research until he is 65.

Nominations may be made to the medical director of the American Heart Association by the Association's own Scientific Council, deans of medical schools, and heads of research units. A nomination must be accompanied by a letter outlining the reasons for proposing the nominee, a letter from the seconder, and a curriculum vitae of the candidate.

A Health Department Stimulates Community Thinking for Mental Health

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AS one facet in the development of a total community approach to a preventive mental health program, case workers representing differing service fields in the City of Alameda are holding monthly meetings, using the case conference method as a springboard for discussion of mutual problems. The discussion group is comprised of workers in welfare, juvenile police, education, probation, and health agencies operating within Alameda. Guided by a consultant-psychiatrist from the State Department of Public Health, these workers meet for an entire morning each month in a dual attempt to promote effective team work and create an awareness of mental health factors among all community case workers.

The usual pattern of these discussions is the presentation of a history involving a single family known to a number of the agencies participating. Following this presentation, the psychiatrist develops the discussion into an analysis of the factors motivating the behavior of members of the family, the factors motivating the workers, the client-worker relationship, and inter-agency relationships.

Although many factors in the geography and social history of the Alameda community may have contributed to creating a desirable setting for this approach, two recent events directly influenced the development of the program. Upon his arrival in the community, the first full-time health officer was faced with demands from many community groups for something in the way of psychiatric services. During the time these requests were coming in, he attended a pilot institute, orienting local health officers in the state to mental health considerations and conducted by the Commonwealth Fund and the California State Department of Public Health.

As a result of the expression of community interest in mental health and the introduction of thinking in terms of the total community mental health program at the health officers' institute, a change in planning for a preventive approach developed. An earlier plan to request the State Department of Public Health's consultant in mental health to conduct a series of discussions with the local health department staff only was discarded. Instead, consideration was given to a broader program, the development of which took into account certain tenets as being basic to planning for community preventive mental health needs.

One of these tenets has received considerable emphasis in current thinking—that a mental health program cannot be established as a separate entity. Instead

of considering the community mental health program as a special program brought in by special people, this philosophy recognizes a mental health program as being a summation of the understanding of human relationships brought to their work by all individuals working with people. A corollary of this thinking is that the mental health of a community is reflected by the kind of services given by *all* community agencies and is not the sole responsibility of any single agency.

Second, it seems fundamental that one community program cannot develop effectively unless other community programs develop along with it. If one or several services fail to progress, all agencies are retarded in their optimum development. It then becomes necessary for some agencies to take over functions for which they are not prepared and which do not logically or desirably fit into their programs. As a result, frustrations develop among workers and clients because of ineffective handling of problems. In addition, a bizarre kind of thinking results among both workers and community residents as to agency activities and relationships.

A third consideration is one frequently stated by public health workers but reluctantly acknowledged by communities anxious to "get something done quick" about the mental health problem. This is the concept that a strengthening of existing case work agencies and of relationships between workers within a community should antedate special facilities for mental health such as guidance clinics. It is pointed out frequently by those having had experience with guidance clinics that unless social workers, nurses, teachers, etc., are able to work effectively with the people who come to them with problems, any psychiatric clinic that is set up will have an impossible case load. Through community organization which serves to obtain maximum utilization of the contributions of all case workers, a clearing house might be developed that would obviate the "dumping" of all problems on a guidance clinic. Thus, community workers would be prepared to act as a strong support and not just a blind referring agent for such a clinic.

It is this latter concept that seems most difficult for communities to accept. Lay persons, unaware of the problems of expense, personnel, and maintenance, may see a guidance clinic as the simple solution to mental health problems. Likewise, case workers who are insecure in their understanding of the significant role they can play in bettering mental health look to a guidance clinic as the answer to a prayer. It becomes something to which they can turn over problems that have become "headaches." As a result, they may overlook completely the valuable contribution they themselves have to offer in functioning at the earliest preventive level—the family worker's level.

Consideration of the above basic concepts, and realization that the community of Alameda was ripe for a broad mental health approach, resulted in a plan to invite all community case workers to meet and discuss the emotional aspects involved in the handling of cases. For this purpose a case worker was defined as a more or less professionally trained individual working with the family. Suggestions as to which workers fell into this category were secured from individuals in strategic positions within the community.

The following were included in the original group: police officers of the juvenile squad, the local worker from the State Bureau of Vocational Rehabilitation, all community social workers—those of the official social service agency and the Red Cross, social workers on the county level working within the City of Alameda including those of the county probation department and the outpatient department of the county hospital,

school principals, vice-principals, and nurses, certain other key individuals within the school system such as the coordinator of instruction, assistant superintendent, and attendance officer, the director of child care centers, and health department personnel. From time to time certain permanent additions have been made to the group, such as the visiting nurse of an insurance company, who represents a new arrival to the community, the dean of boys, and the dean of girls in the high school. In addition, when individuals outside the group have worked with the family under discussion, they are invited to participate in that session. For example, at one session a local school teacher and at another, a psychologist working with a county agency, had considerable to contribute. The regular group attendance ranges between 30 and 40.

In order to make certain that this program be understood, the health officer made personal contact with each of the individuals considered for participation, and, after determining his interest and support, approached, wherever the individual was not in a supervisory role, the worker's supervisor, for example, the chief of police, or the supervisor of the probation department, again explaining the program and requesting that the worker be given time to attend the meetings. It was significant that the district school administrators were keenly aware of the need for such a program and therefore lent support by permitting the use of school facilities for meeting places in addition to releasing a large number of personnel to participate in the meetings.

Indicative of the interest which developed in the meetings was the fact that, as the meetings progressed, a number of additional individuals requested that they be included in the group. Among these were the executive director of the local Camp Fire Girls' group, the assistant director of recreation, a director of one of the housing projects, and some of the ministers within the community. However, since the inclusion of group workers would have created an unwieldy number for case discussion, the restriction of the group to case workers, except for an occasional visitor, seemed necessary.

In the original meeting no preconceived plan of discussion was followed. Since most of the workers were unknown to the mental health consultant who was conducting the discussions, and since also many of the workers knew each other only as telephone acquaintances, if at all, the consultant asked that each worker introduce himself, stating briefly his work in the community and what he hoped to get out of the series of meetings. This resulted in an excellent review of the community's resources and lacks, and revealed a frank acknowledgment of the need for better coördination of efforts even in this relatively closely knit community. In addition, it brought out a common request for assistance and support in the handling of psychological aspects of case work.

Meetings subsequent to the introductory session were centered around a case discussion. Although the original plan was to have a series of four meetings for the group, by the end of the third session it became apparent that this group could be the nucleus for development of badly needed coördination of the community agencies' activities. When a school administrator voiced a request that the group continue on a permanent basis and attempt to develop techniques for remedying certain gaps in services, a permanent organization was set up with the health officer elected as chairman, and the school coördinator of instruction as secretary, the state mental health consultant to continue as an adviser.

Out of the sessions that have been held to date, certain aspects of discussion have received sufficient emphasis to

suggest their being considered as factors indicating growth in the group's thinking. In setting these factors down it should be recorded that this thinking developed over a period of meetings and not in the order stated below. While examples leading to the thinking are given in several instances, it should also be noted that the mental health consultant took every opportunity to generalize the thinking so that it might be applied to other efforts and not only to the case under discussion.

GROWTH FACTORS IN GROUP THINKING

1. A generalization evolving from a number of the case discussions was that, from a family's point of view, antagonisms against community services may be built up not because of too few community resources, but because of the uncoördinated activities of too many. When a family arrives at a point where outside help is needed, the experience of adjusting to relationships with not one but several workers adds to the emotional burden already imposed upon it.

This point was strikingly demonstrated by the case of the K family. This family was made up of a father and mother living in illicit relationship, the father still legally married to a woman in the East. The complex family picture included three illegitimate children born of the more recent relationship, and another child born of the man's eastern marriage. The latter child, age 6, is a post-polio paralytic. An increasing feeling of guilt on the part of the mother of the illegitimate children concerning her relationship with Mr. K, particularly after the death of one infant, resulted in her deserting Mr. K, taking along her own two children and leaving the polio victim to assume the role of caring for herself and the house, in addition to adjusting to her first school situation.

Attempting to give help at one time or another within a relatively recent period were: social workers from the Red Cross, a family service agency, and the county hospital, the physiotherapist from the county hospital, a health department public health nurse, a school nurse, the school teacher, principal, and the city justices court. In addition, a juvenile court worker had been requested to enter the case following the complaint of a neighbor about the neglect of the crippled child.

The consensus of the group in discussing this case was that the father's having literally closed the door to agency help stemmed from the uncoordinated activities of this barrage of workers.

Consideration of the impact of the workers on the family led to the conclusion that where several agencies enter into a family situation, the strongest worker-family relationship should be recognized and the agency having this relationship encouraged to continue in a dominant role. The role of all other agencies will then be a supportive one to the dominant agency. Whether or not an agency is in a dominant role will be dependent on that agency worker's relationship to the family or to a key individual within the family. This relationship may not only be dependent upon the particular skills and personality of the worker but also upon such factors as the time of entry of the worker into the family picture, the force of pressures the family was under at the time the relationship was initiated, the tone of the first contact, and so on. This dominant-supportive relationship is not a static one, and it is important that it be noticed by the workers when the role is changing and that workers understand the wisdom of withdrawing to a supportive role when such withdrawal would enhance the value of the total effort in behalf of the family.

2. In spite of the fact that a social

service index is operated on the county level and is used by a number of the local agencies, premature attempts at problem solution were being made and workers were acting without having all of the information available.

Illustrative of this point was the fact that in the K family mentioned above it became apparent that the teacher had developed an effective relationship with the crippled child, and through her with Mr. K, the father. Although the public health nurse and hospital social worker were actively attempting to improve the child's neglected status, they were not aware of the teacher's closer relationship to the child and father.

As one resulting development of the group's thinking-through together the above experience and similar ones, juvenile court workers are now obtaining the school's experience with a child and family preliminary to taking action, and in turn are giving reports to the schools on cases of school children with whom they have had contact. In addition, a subcommittee from the group is now exploring the possibilities for more effective inter-agency index and referral.

3. A transition in thinking seemingly took place in the minds of many of the workers concerning their responsibility in a joint effort to meet family needs. During the introductory meeting of the group, many workers voiced as their primary reason for attending the meetings a desire for a clearer understanding of the potentialities and programs of all of the agencies in the community that worked with the family. Their approach seemed to be one of hoping to find additional resources in the community so that one's individual work would be simplified from the standpoint of referring clients. As the meetings progressed, however, and as each case was utilized to direct thinking to community approach and relationships of agencies as well as workers, there was gradual growth of thinking beyond the individual's responsibility into the concept of the community's impact on the family. This might be illustrated as a growth from the viewpoint of how the individual as a worker could utilize other agencies to simplify his work, to that of how he could see himself as an integral part of a total community effort toward the solution of a family problem. It is possible now to look back and note almost the steps of the process through which the group has moved to this understanding.

4. The final selection of cases for discussion is made by a committee representing the various agencies participating in the group. The committee selects from the suggestions turned in by every member of the group.

Since the original purpose in using the case study method was not primarily to use the services of the psychiatrist in a consultant role on a particular case, but rather to study families and determine what happens to them over a period of time in their contacts with community services, the cases selected have been families known to the community for a long-term period, ranging generally from three to ten years. The presentation of the family's history, together with its current status, has served to demonstrate strikingly the fact that mental health is a matter of time and growth, that what happens to a family at any particular time, and how it is felt by the family, is incorporated into that family's social development to be reflected at a future date in the total mental health picture of the community. This realization that what we are doing with families currently will have great meaning years from now is obvious in reflecting on these histories.

5. Certain lacks in the community have been clarified. In addition to the glaring need for guidance services, the nonexistence of psychological services in the schools and social agencies has been pointed up more acutely.

Further, the effective handling of these sample case discussions suggests the urgent need for a psychiatrically-oriented individual in the community who can effect coördination between agencies by scheduling and assisting workers for case discussions directed toward the solution of a particular problem.

SUMMARY

Case workers representing varied community services in the City of Alameda are attempting a community-wide approach to the preventive aspects of mental health problems. These case workers are meeting together once each month, using case presentations as a basis for discussion of mutual problems related to the emotional aspects of their work.

In the year that the group has been meeting it has moved through a group process to a point where certain preliminary outcomes can be pointed up. Among these are the following:

1. Successful coördination of agencies' work requires that each agency active on a case recognize that it is playing either a dominant or supportive role to that of other agencies.

2. Unless an effective program for inter-agency referral and collaboration is developed, workers act prematurely without obtaining all of the information available with resulting confusion and emotional trauma to the family.

3. Group thinking among case workers representing all agencies interested in the family can stimulate growth in workers' thinking to a point where they can recognize their work as being part of a total community effort in behalf of a family.

4. The result of effective or ineffective handling of cases at any one point of time is absorbed into the family's development and is reflected at a future date in the total community mental health picture.

5. There is a definite need in a community for a psychiatrically-oriented individual to coördinate the work of agencies by assisting workers on a consultant basis with particular cases.

NOTE: Sincere credit is due Dr. Kent Zimmerman, Consultant in Mental Health, California State Department of Public Health, for making the sessions described in this paper possible.

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Contributions of the School Nurse in a School Dental Program*

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The school nurse as the pivot about which the dental program is organized and functions:

A realistic approach to the school dental health program faces us with the fact that no matter how many people in and outside the school actually participate in the program, the school nurse is primarily the one to whom every one looks, in order to start things moving and to keep them moving.

Few schools have a full-time dentist, which means that the school dentist relies heavily upon the nurse to interpret his findings and help people to secure the necessary dental care.

While the nurse is the chief responsible agent to see that the dental program is carried on, she cannot do this without the coöperation of the administrator and the entire teaching staff. A successful dental health program is the result of good team work between all concerned, with the nurse at the helm sending out the necessary notices to parents, fully informing teachers and administrators of the dental defects noted by the dentist, and interpreting his findings in terms of what progress they may or may not reveal. A showing by percentages of the present situation and comparing it with past records, is a helpful means of interesting pupils and teachers in working for further goals. The senior and junior high school groups particularly like a race and a flare of competition.

A system of close checking and reporting back and forth between nurse and homeroom teacher is highly desirable in keeping both up to date on the ever changing dental picture in the school.

The nurse is usually the one to initiate special dental programs, exhibits, etc., requiring special equipment, speakers, etc., although she may motivate social studies, science and health groups to undertake such projects as a part of their assignments. Being the indirect initiator for pupils to assume dental studies on their own, is perhaps far better health teaching on the part of the nurse and is apt to secure action for better teeth in great numbers of those pupils who did something on the project.

The nurse must also see herself in the role of a sound informer and consultant for teachers needing up-to-date scientific material to draw upon in teaching, as well as for parents needing practical guidance. For this reason, she must keep herself abreast of the best practices and be reasonably informed on current trends.

The enormous task of obtaining dental care for every child must, of course, be approached, as the responsibility of the community as well as the school and so, in this connection, the nurse will do

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well to encourage the formation of a dental health council in the community if one does not already exist.

The council might be a part of a general community health council. It should include representation from the schools, parents, interested lay people, and dentists, who together will develop workable facilities and policies for carrying out an adequate community dental health program. The school should tie itself very strongly to such a council and make its voice heard, for the school knows in most every instance the dental situation at first hand, and this is only possible because of the careful work of the school nurse.

Observed opportunities for character and personality changes as presented by the Dental Health Program:

In discussing this point, it is not presented with the view that it is a new discovery, but for emphasis, as a suggestion for enriching routine procedures, as well as helping to build permanent attitudes of mind which will lead to improved patterns of behavior.

Generally speaking, as school nurses, we do not think of our counseling and corrective work as offering possibilities for the improvement of character and personality. We are mainly working for tangible results in improving the physical welfare of the school child. It seems like a very concrete area of endeavor, as indeed it is.

We usually expect that our efforts will cause the individual either to do something we think is good for him or to stop doing what is injurious. Various methods, subtle and otherwise, are employed in the classroom and in personal contacts to achieve the desired goal.

Changes in behavior are expected, since this is the very aim of health education, but in our routine work of attempting to reach these more immediate ends, we do not usually take into consideration the fact that any change in behavior brought about in a person has a deeper implication than what is discernible to us in his outward deportment, and may profoundly alter the individual's entire attitude toward life and his environment. Something deep within him has changed, which is mirrored in his changed behavior.

This fact can be easily lost sight of in the maelstrom of a heavy routine which, more and more these days, seems to bind us down to the slavery of statistics and of more and more records. It is highly important, however, to bear in mind, for within it lies a most precious tool for personal development.

I have found that the school dental health program provides a richer opportunity for motivating character and personality changes in students than any other phase of our health work.

Dental health in the majority of cases is something that has to be acquired by subjecting ourselves in varying degrees to discomfort, even pain sometimes, self-discipline, and emotional control. It is unique in this—children for example do not fear to go to their family physician in the same way they fear going to a dentist.

For the most part, dental health is something no one can give you, unless you coöperate to obtain it. With few exceptions, nature has given no effortless handouts in dental health. A certain few do seem free from dental caries, but in the present stage of scientific knowledge regarding dental decay, regular visits to a dentist, in combination with certain sound health habits, seem to be necessary for the vast majority of people.

The picture may change. Science may some day triumph over the cause of dental decay, but until that day arrives, we have got to obtain dental health in the hard way.

Great numbers of little children and young people, as well as the oldsters, resist the dentist. It is a natural re-

sponse and surely provides one of the greatest obstacles in achieving successful dental health programs.

It is fear then, with which we so often have to deal in our school dental work. If we can achieve some measure of success over it, it is my contention that we are really giving the child something to stay by him for life.

In spite of the comforts and conveniences of these modern days, as a people we are full of fears. People fear cancer, they fear arthritis, they fear polio, they fear the power of atomic energy, they fear war. Fear is cumulative, like the proverbial snowball. One fear leads to another and may easily develop a life pattern of fears and inhibitions. Can we help our children to learn to resist and overcome fear?

It has been my observation over many years, that students who have overcome their fear of going to the dentist and who have followed through to the necessary treatment, develop stamina and confidence they did not appear to have before, and have often become different personalities.

Often, of course, the characteristics they have exhibited did not appear to be those of fear, but could later be viewed as among those protective, defensive attitudes which have their roots in fear.

It is because of the possibility of this extra dividend, as it were, occurring, that we should from the start, in our dental health education, be on the alert to foster it—either with groups or more especially with individuals. It is not so much direct action to be taught, as it is an attitude of mind to be developed. The idea is that dental discomfort and the facing of an unpleasant duty is a part of life to conquer. It may be likened to a great wave that comes in the swell that we must breast. Thus, dental health may become not an isolated task but a part of the whole life response.

I am going to cite three or four cases that I have had the privilege of working with, which illustrate the point I have tried to bring out:

1. Barbara—age 8, 3rd grade: Teeth extremely poor, an only child, peevish, petulant, always making excuses. Refused all attempts at dental care. Mother alternately indulged and whipped her, for what she told the nurse was B's impossible disposition. There were many conferences with Barbara.
   Dental care was not instituted until her 9th year, then had to be taken in very slow steps. The dentist was an unusually patient person who liked dealing with children.
   Today, Barbara is 11 years old. Her teeth are in excellent condition except for a slight malocclusion, which resulted from the early neglect. The 6 year old molars were saved.
   Best of all is the total change that has come over her. She is extremely proud of having won out with herself—that is about the way she puts it. She even says that she is not afraid of anything now.
   Her teacher reports "an even temper, good class spirit, and very coöperative, even if she still does like attention—but who doesn't!"

2. James W.—age 15, 8th grade, junior high school: Extreme dental case. Overgrown for age and somewhat retarded. Very antisocial. Attended dental clinic once and refused any further care. Parent supported boy against the school.
   Application to the local vocational school before graduation from junior high school made dental work imperative.
   James was finally won over to go to his own dentist, which he did, to the complete satisfaction of the school authorities.
   The change in James followed the completion of his dental work, which took place during the summer following his junior high school graduation and some of his 10th year. It was nothing short of spectacular. He learned to smile at people and forgot all of his defensive, belligerent tricks. He became a good vocational student and continued regularly with the dentist.

3. Florence—7th grade, junior high school: All teeth extremely bad, probably impossible to be saved.
   Florence had refused all dental care during her elementary classes. When she entered junior high school, she was highly nervous, posture poor, nails bitten, refused to participate in any auditorium programs. Dental care was not instituted until just before she entered the 9th grade. A partial upper

plate was necessary, but most of the lower teeth were saved.

Graduated last June from the 9th grade. Florence was not the same girl. A veritable metamorphosis had taken place in her. She had become a chatty, happy, student, who participated normally in everything and had complete confidence in herself. She admitted to me as the school nurse, that her teeth made a different person of her. Incidentally, she conquered the nail biting habit also.

4. William G.—Age 15 years, 10th grade: Entered vocational school with many promises that dental care would be started. Many conferences were necessary and considerable approach made along the lines mentioned in this paper. Finally, William got up courage to go to the dentist in his last year, and completed all the necessary work. My reward came when he reported to the nurse's room just before graduation to thank me for "keeping at me," as he put it, for he said, "I would never have done it unless you had treated me the way you did and I will always be grateful. It just makes me feel different somehow, about everything."

I could cite many more, such as a high school boy who, after conquering fear of the dentist came to me one day and asked me bluntly, "Say, if I could lick that dentist, do you think I can stop smoking?"

But enough has been said to put across my point. More is involved in the dental health program than merely getting children to have clean, healthy mouths, important as that is—and I would not minimize it.

However, you can see that the little child who has been successfully persuaded to make repeated trips to a dentist and has conquered his fear, has unconsciously achieved a victory in character formation and, if properly guided by his teachers and parents, may well be led to other conquests calling for stability and endurance.

For the older student, such an accomplishment presents a thrilling sense of achievement and self-confidence, on which he should be encouraged to capitalize.

In all of this, the school nurse is the one person who can direct and promote this emphasis, because it is her direct responsibility to see that the dental program moves forward and also because students and teachers alike come to her in confidence for help and guidance.

So it becomes her thrilling opportunity to give a dynamic touch to dental health education and to make a prosaic routine phase of corrective work, a spearhead for new response patterns—new learnings—and it is not too much to say, new strengths of character.

Research in the Nursing Field*

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RESEARCH in the nursing field has been slow to develop, and this is understandable. With a constant shortage of nursing personnel and no let-up in the demands for nursing care, nurses have concentrated on service to the patient, and research has had little chance to become a major nursing interest. Yet, many a nurse who has insight into her patients' needs frequently also has an intuitive grasp of the ways in which a patient might fare better. This grasp, coupled with the capacity for organized observation, is the first requisite for any research.

There is evidence that such studies are increasing in number. This can be confirmed by checking new sections in official publications of the nursing profession, *The American Journal of Nursing* and *Public Health Nursing*. These sections list research studies undertaken by graduate students and faculty in university nursing programs. It would seem that it is now time to examine the type of studies which need attention, the areas where the reward of discovery or confirmation will be most valuable, the opportunities for research, and the projects which are currently receiving wide consideration.

The beginnings of research arise when a question looms up in the researcher's mind, a question that is obstinate, that presses for an answer, that can be corroborated by controlled experiments—a question that cannot be satisfied by idle speculation but which must be submitted to long, patient tests of objective observation. Such private curiosities are less the rule nowadays than they were 100 years ago, although individual questions and individual efforts still must exist and be pursued. Today, the great body of science has moved into an era of planning. It has organized its problems and defined its areas of needed study. Industry has done this and so have many universities. Frequently, with the topic already selected, the researcher is assigned to his task.

In nursing also research can be undertaken in accordance with a plan. Further, the profession has a definite responsibility for indicating the areas in which research is most needed. But while the topic may be pre-selected, it is essential that the research worker himself must urgently feel the need to explore the subject. He must be at once curious, enthusiastic and willing—for most research entails a large amount of tedious and repetitious work which would shortly snuff out the worker's zeal were it not for his own irrepressible desire to see what's around the next bend in the path. And so there must be a two-way meeting of worker and project before the right person, properly equipped, begins the research that needs doing.

Since the primary objective of nursing is service, the profession has attracted few people with a strictly scientific bent, and the nursing educational system has done little to develop embryo research workers. Employment oppor-

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tunities in nursing research have been almost nil. Little or no organized or official incentive of any kind has been developed in this field. In other fields, university faculty members are expected to do research during a given portion of the work week, with teaching loads adjusted accordingly. Special university funds permit employment of research workers. In industry, vast research departments have full-time staffs; and in science both private foundations and government help support research.

This is not equally true in nursing. Perhaps it might be reasonable to expect the university nursing schools to be the first to recognize the need for research. However, even when the desire and the funds are present, it is often impossible to carry out a staffing plan because of the shortage of persons prepared for faculty positions. Besides, very few nurses are prepared to do research. There are few places to prepare them and few positions for them if they were prepared. The problem takes on the aspects of a vicious circle.

The circle can be broken by experimenting with changes in our present methods and procedures. Perhaps the first step is to scan the problems which need to be solved. For the purpose of this paper, tabulation studies, which merely count items or scrutinize existing practice, will be excluded. These are recognized as necessary first steps in research of any kind and are also essential for wise administrative planning. However, our current discussion will deal with a type of research which is not limited to statistical correlations of existing practice but which experiments with new relationships in an effort to detect the results of different methods tried under varying controlled conditions.

There are any number of ways to group potential research studies. Three broad areas may be considered to lead into promising roads. The first area deals with the amount and kind of nursing care needed by various categories of patients under various conditions inside and outside the hospital. The second deals with studies pertaining to our teaching methods. The third is concerned with the effectiveness and improvement of nursing techniques. Areas two and three—our teaching methods and our techniques—will automatically have a bearing on area one—the amount and kind of nursing care.

How much nursing care is needed in the hospital? Current standards are based on present practices rather than on scientifically controlled studies of patient welfare. At first such studies may appear too difficult to tackle. They cannot be lined up in as clear-cut a fashion as counting the number and types of bacteria on a slide under a microscope. They move into a field where the patient's emotional as well as physical well-being are major factors, and where the effect of the nurse's personality on the patient's well-being varies greatly. These difficulties all raise the question of whether or not objective criteria can be established for measuring the effects of nursing care on the patient. Yet, whatever the stumbling blocks, the problem is vital enough not to be discarded. If first attempts misfire, it should be recalled that the history of most discoveries is a long trail of failures, sometimes ending in brilliant success. Salvarsan 606, once a very useful drug, was so named because it was the six hundred and sixth substance tried.

As so often happens, common observations may be clues to needed research. It is well known, as a result of just such observations, that certain patients may get pressure sores if they receive less than a certain quantity and quality of care. What happens at the other end of the scale if they receive increased amounts of nursing care? Doris Schwartz, in an article entitled "Nurs-

ing Care Can Be Measured" in the March, 1948, issue of *The American Journal of Nursing*, asked herself this question and undertook to answer one aspect of it. She demonstrated with one group of patients that the patient's sleep is related to the amount and kind of evening nursing care he receives. She obtained permission to leave the lights on one hour longer in the evening. During this period she visited with patients, talked to them, adjusted pillows, blankets, filled water pitchers, gave hot water bags, and in other ways made the patients comfortable. But mostly she talked and listened. On the evening that patients received this extra hour of care, they fell asleep easily and rapidly. The amount of sedatives they requested was reduced by one-third. The resident physician was interested in the experiment, and on certain nights he joined Miss Schwartz during this hour. On these nights, the patients' need for sedation was cut by one-half.

It is reasonable to suppose that other factors besides sleep are affected by nursing care. What happens to a patient's pulse rate, his blood pressure, the flow of digestive juices, and other physical activities when care is increased? What happens when it is diminished? Or withdrawn? These questions need intensive study. In the case of early ambulation, factors such as pulse rate and blood pressure were measured and served to prove that the procedure was beneficial to the patient. Basically, early ambulation might be considered a nursing technique, since it involves no medications or treatments. To what extent do other types of nursing care hasten recovery?

Experiments must be made regarding the number and kinds of nurses which will insure optimum recovery. The question of what constitutes minimum care also should be answered. Then, perhaps, for practical purposes, a midpoint could be selected which might be considered adequate. Dr. John Cohen, of the University of Leeds, in a minority report of the British Working Party,* studied the relationship of numbers of hours of nursing care and average length of patient stay in 601 general hospitals in England. He found an inverse correlation between the number of nursing hours per patient and the length of hospital stay. The more nursing hours per patient, the shorter the hospital stay. The difference was small but statistically significant. If we should find the same correlation in this country, it would be extremely important in planning hospital budgets. It would help determine staff numbers in relation to patient load.

Outside the hospital walls, the same kind of studies are needed in the public health field. How many and what types of patients sick at home would profit from nursing care? How many hours of care and what kind of care should be given? What happens to the patient and family if no nursing care is given? How can the visits of the public health nurse to mothers of new babies be most effective? Can we find objective measures to help us answer these questions? At least an attempt should be made to find such yardsticks. Otherwise, as long as one takes refuge in the "intangible" benefits the public health nurse brings to a family, it will be difficult to make progress.

The results of such studies may be slow in appearing and a long period of follow-up may be needed to detect them. The child health study in Rochester, Minn., is planning to study children from birth to adulthood. Research workers have not been deterred from starting this project even though results will not be confirmed for 20 years or more. At the same time, other studies may develop criteria which will yield some of the answers in a shorter time.

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* *Working Party on The Recruitment and Training of Nurses.*

Our present standards of the ratio of public health nurses to population are based on practice of 20 years ago, in spite of the fact that our health problems have changed. New techniques have been developed and our emphases have shifted. It is time to reëvaluate our standards—to confirm or revise the presently recommended standards. Public health nursing service is so comprehensive that in making such studies it might be helpful to tackle separately certain sections of the problem. We might study the amount of nursing time needed to operate satisfactorily the clinic services of a health department. This would include not only the time actually spent in clinic but also the time needed to maintain clinic attendance and to do the necessary follow-up. This might be followed by a determination of the amount of nursing time needed for care of the sick in the home, for the school program and for other programs. The field is wide open for these and similar studies.

A second area of research touches on our teaching methods. There is still an acute shortage of field training facilities for public health nurses and for basic students in public health. Perhaps these field facilities could be expanded if teaching methods were improved. For example, it might be possible to save staff nursing time by using a greater number of motion pictures and reducing the number of observation visits made by a student with a staff nurse. At present we are using the old apprentice method in which a student accompanies a staff nurse for a stated period before starting to visit patients alone. When a student comes to a field agency, her interest and receptivity are high. She knows she will be asked to make independent visits within a day or two. If motion pictures were specifically designed for teaching students in the field, it might be possible to shorten or eliminate the period of observation with the staff nurse. The film could be discussed at various points, and problems brought out even more effectively than in home visits. This type of visual study, combined with discussion, might assure the student sufficient understanding of family situations to enable her to start out on her own. Research might involve the study of groups of students, one-half of which make the usual visits with the staff nurse while the other half receive visual aid instruction. The same supervisor could accompany members of each group on the first few rounds of visits and judge whether one were better prepared than the other. Additional tests might be needed to find out whether the group receiving less personalized orientation had an adequate, if not equal, amount of security during the first day's visits. This is one example only of a much needed study. With a little thought, many others will come to mind.

In a third area—studies pertaining to manual procedures or nursing techniques—a good deal of research already has been done. A major project is under way at present at the U. S. Public Health Service Communicable Disease Center in Atlanta. In coöperation with the Division of Bacteriology, a nurse is attempting to determine which of our present aseptic and isolation procedures are necessary and which need modification. A start has been made with a study of thermometer techniques. Various other procedures, related to isolation, will be investigated in turn. The numerous small studies which have been completed in this field reveal much contradictory evidence. Studies at the Communicable Disease Center are designed to move into the areas of contradiction and collect sufficient data to resolve some of the present questions.

In the foregoing examples, attention has been directed to a few large areas in which research studies are needed. Many other areas can be delineated, and within

each field there are innumerable subareas which await study. Research is a slow process. The pressure and rush which most nurses take for granted make it difficult for them to be patient, to plan long-term projects, to work and wait for results which are not immediately forthcoming. The nursing profession has already recognized its obligation to contribute toward the improvement of nursing service and in collaboration with allied professional groups must join with other workers to plan for the needed research and help get it under way.

New England Health Institute

Women tell public health workers that they have often been left out in attempts to secure adequate local public health services. This was the consensus at a recent spirited meeting called "What Women Want From Public Health," at which the speakers were representatives of the two national federations of women's clubs.

Another session developed clear evidence that, as public health is often practised, the public is being shortchanged on its public health dollar. A city manager and prominent citizens provided convincing data that town health unions, as already authorized by 3 New England state health laws, are an economical and efficient way of providing community health services.

An entertaining banquet speaker related his topic: "The Sixth Sense Is the Sense of Humor" to public health. An entire half day session was devoted to a better understanding of "Alcoholism—a Social and a Health Problem." Professor Winslow's summary can be paraphrased as saying that team work produces local health services; that the product which finally comes out of local health departments is productive citizens and—let appropriating bodies note—that means productive taxpayers.

Such a lively and varied bill of fare was provided at the joint meeting of the New England Health Institute, fourth annual Massachusetts Public Health Conference and 60th annual meeting of the Massachusetts Public Health Association.

The setting at the University of Massachusetts at Amherst did much to strengthen the meeting and secure a commendable amount of participation by the more than 500 persons attending.

Proposed Report on Educational Qualifications of Medical Social Workers in Public Health Programs*†

I. General Scope of the Field

Medical social work has developed in relation to the practice of medicine in hospitals. More recently it has been extended to public health departments and other organized programs of medical care and health services. Physicians, public health personnel, and hospital administrators have found that individuals can more readily achieve health when social and emotional aspects of their situations are given consideration. They know that the most expert health services may be unsuccessful if the individual lacks the desire or ability to carry out recommendations.

The medical social worker assists the staff of the health agency in identifying relevant social, emotional, and economic factors related to health, and works jointly with them in helping to meet social problems related to health and medical needs. This work is carried out in continuous association with the other personnel in the health agency. The medical social worker's contribution to health and medical programs is made through application of the philosophy, knowledge, and skills of social work, particularly social case work.

In the past decade many influences have been brought to bear which have affected health and medical care and social work. There has been steady integration of the concepts of public health and medical care. Emphasis has been given to the preventive approach and to social and community aspects of health. Advances in psychiatric thinking and increased knowledge of human motivation and behavior have shown how important it is for groups and individuals to understand and accept measures employed for the prevention of illness and promotion of health if such measures are to be successful. The passage of the Social Security Act in 1935, which stresses the right of the individual to basic benefits and gives him the decision whether he wishes to avail himself of these, has had a profound effect. The development of large-scale health and medical care programs under public and voluntary auspices has increased the demand for medical social workers. In these programs they serve as consultants to administrators and other professional personnel, assisting them in relation to social aspects of program and community planning and helping to develop and maintain working relationships with social agencies. Consultation services concerning individual problems are given to community social workers, physicians, nurses, and

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* The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† Prepared in consultation with the Referee by the Subcommittee on Educational Qualifications of Medical Social Workers in Health Agencies, Committee on Personnel, of the American Association of Medical Social Workers, and approved by the Executive Committee of that Association. The members of the Subcommittee included: Beatrice Hall, Chairman, Helen Almy, Eckka Gordon, and Grace White.

other groups. Social case work services to patients and families are being provided increasingly as the programs develop and as additional social workers are added to the staff.

Accurate information as to the number of these positions is not available. It is estimated that in 1950 there are over 400 positions for qualified social workers in health agencies, exclusive of positions in hospitals, clinics, and other medical institutions. The largest number is on the staffs of official public health agencies (state, county, and city) and of other agencies administering crippled children's or vocational rehabilitation services under the Social Security Act. Qualifications established for these positions usually require completion of professional training and experience in medical social work.

Other positions are on the staffs of voluntary health agencies operating on national, state, and local levels. Responsibilities for these positions are somewhat varied, and qualifications reflect these differences.

Since 1918, medical social workers have been associated in a professional organization now known as the American Association of Medical Social Workers, whose purpose is to promote the quality and effectiveness of social work in relation to health and medical care. Completion of the accredited curriculum in medical social work, or a combination of academic and professional education and medical social case work experience, is the basis of eligibility for full membership.

II. Statement of Functions

A. Duties performed at present

The medical social worker in a public health agency is responsible for planning, developing, and directing social services within the framework of the agency's function.

The social services provided by the health agency are those deemed necessary to meet social problems influencing the effectiveness of the health and medical programs which are the agency's primary concern. The social services are directed toward strengthening the agency's program through increased understanding of the relationship of social and emotional factors related to health and medical care.

The range of the medical social worker's activity is determined by the scope of the agency's program and its organization. The medical social worker's activity may also be limited by administrative decision to certain divisions or bureaus of the agency or health department, particularly when the service is being initiated.

In a large health agency responsible for health and medical services, the social service activities will include most, if not all, of the following:

1. Determination of need for social service in the agency's total program.
   (a) Continued study and evaluation of needs for social services in existing programs of the agency and determination of resources within agency and community to meet these needs.
   (b) Interpretation of these needs to administrator and staff.
   (c) Participation in early planning for new programs with respect to essential social services.
2. Planning and directing the scope and focus of social services which will include the following:
   (a) Consultation on the social aspects of health and medical care of individuals and groups.

   This service is directed toward increased understanding of the meaning to the individual of health and physical disability and toward joint efforts to meet related health and social needs. It may be provided to the health officer or administrator and staff of the agency and to social and health workers in coöperating agencies.

   (b) Providing service through social case work.

   This service to the individual will frequently be for a brief period and directed toward transfer of responsi-

bility to other community agencies, when continuing case work is indicated. It may be intermittent, associated with periods when the individual's social and personal situation affects his ability to accept and carry out recommendations for his health and well-being. It is often given in clinics, through interviews with patients and families at time of diagnosis or at the time hospitalization is recommended. This service may also be initiated at any time by request of physicians and nurses who recognize the patient's need for help in planning to meet special problems. These brief services facilitate and strengthen consultation, enabling the medical social worker to discover and evaluate social and emotional problems. The worker shares the evaluation of the social situation with other professional personnel who have a continuing relationship with the individual or family.

Continuing case work services are provided on a selective basis in instances of special need, in the absence of family or children's agencies to which referral can be made, or for demonstration purposes.

3. Participation in program planning and policy formulation of the agency, with special emphasis on:
   (a) Assistance in the development of policies and procedures of the agency such as those related to eligibility for service and appropriate referral for services not provided through the program. This contributes to continuity of care and facilitates coördination of community activities for meeting social as well as medical needs of the individual.
   (b) Evaluation and reconsideration of policies in light of urgent and recurrent problems among individuals receiving service.
   (c) Discussion of gaps in program and difficulties of families and individuals in utilizing services fully and effectively. The medical social worker's close contact with social and health agencies in the state and community affords a unique opportunity to bring understanding of these problems to the program.
4. Participation in community organization through:
   (a) Establishment and maintenance of a liaison with welfare departments, social agencies and social service departments of hospitals in order to bring about a better use of the health department's services by these agencies, and vice versa.
   (b) Interpretation of social needs which cannot be met by the health department alone where community planning and participation are essential for rehabilitation of the patient.
   (c) Assistance to the administrator in identifying gaps or overlapping in community services and in integrating the services of official and voluntary agencies (social, educational, vocational, etc.), so that all may work together for the ultimate rehabilitation of the patient.
5. Participation in staff development and in-service education program of the agency, and in orientation of new staff.

   The objective of this participation is to increase the awareness and understanding of all personnel with respect to environmental, economic, and emotional factors as these are related to medical and health needs, the provision of health and medical services, and the utilization of these services by individuals and groups.
6. Participation in studies and surveys.
   (a) Studies directed toward evaluation of current programs or expansion of services in areas of unmet needs.
   (b) Studies of social and emotional factors in child growth and development and in medical and surgical treatment, particularly related to programs and services for which the agency has responsibility.

B. Types of Positions

Review of existing medical social work positions in health agencies reveals considerable variation in scope of responsibility. In general, medical social work positions may be grouped at three levels:

1. *The director of social services* (frequently designated as chief consultant or supervisor), who has responsibility for organizing and developing services and for selection and supervision of other social workers in the agency.
2. *The district or regional consultant or supervisor,* assigned to a state or local area, who has responsibility for developing services within the framework of broad established policy under the general supervision of the

director. This worker may have supervisory responsibilities for staff.

3. *The staff worker,* whose primary responsibility is the provision of services to patients. This worker receives supervision in the professional activities from the district or regional consultant.

III. Educational Preparation for Medical Social Work

The accepted preparation for medical social work is a two year professional program in a graduate school of social work leading to a Master's degree. The two year graduate curriculum has been advocated since 1923. Admission to a graduate school of social work requires a Bachelor's degree from an accredited college. Colleges are accredited by the Regional Associations of Colleges and Secondary Schools. A strong groundwork of social sciences and the humanities in the bachelor's program is recommended.

GRADUATE EDUCATION

The medical social curriculum consists of the basic social work curriculum combined with additional special class content and field work practice as deemed essential for the practice of medical social work. The basic curriculum is progressively defined by the American Association of Schools of Social Work which is recognized by universities, colleges, and the field of social work as the standard-setting body. The accredited school of social work, as referred to in this article, has been accredited by the American Association of Schools of Social Work. The Association of Schools has looked to the American Association of Medical Social Workers for definition of the medical social content and has accepted the statements of essential elements in education for medical social work which have been progressively developed by the Education Committee of the AAMSW. The list of accredited schools of social work with designation of those offering medical social curricula is published by the American Association of Schools of Social Work. Currently, 24 of the 53 schools of social work offer accredited medical social curricula.

The basic social work curriculum and the specific medical social content is a well integrated program of courses of study, field work practice, and research. The total curriculum enables the student to attain the essential knowledge, attitudes, and skills, together with a basic philosophy which constitutes preparation for practice in hospitals, clinics, health and welfare agencies. The curriculum includes the following major subject areas:

1. *The social work processes.* Social case work, social group work, community organization, social welfare administration and social research. Although social case work is the major function of the medical social worker and the field work practice is social case work, the social worker must learn all of the methods used in giving social services and in planning to meet social and health needs. The basic curriculum provides a generic approach to the study of the processes of social work, and the medical social content helps the student comprehend the use of these processes in medical social work.

   Since medical social work is a collaborative process in which medical social workers both contribute to and learn from their associates with whom they practise, the medical social worker must learn the background, specific objectives, and ways of working together in medical and health settings. The worker must achieve skill in teamwork with other professional persons as well as skill in working with individual persons and community groups.

2. *Understanding the individual in health and disease.* The dynamics of human behavior, both normal and pathological, of adults and children must be sufficiently understood for the student to apply the concepts in practice with reasonable security.

   Medical and psychiatric content includes normal growth and development, concepts of preventive medicine and public health as well as description and demonstration of major diagnostic groups or diseases. This material is presented by physicians from clinical and public health fields and stresses the interaction within the human organism

of the responses to physical, social, and emotional stimuli as well as the physical expressions of disturbance. The student is also helped to see the social, economic, and political conditions which affect behavior. The student needs to have a real grasp of both psychological and cultural factors, the interaction between personality and environment and between internal strains and external pressures.

The special medical-social content enables the student to gain a deeper understanding of the meaning of health to the individual and the social and emotional implications of illness and relates these to the provision of health and medical care services.

3. *Community Social and Health Needs—Community Resources.* The subject matter in this area is of wide range and aims to give the student a broad and comprehensive concept of the socio-economic conditions and the forces operating in the lives of people. The social worker needs to have a clear knowledge of the framework of public health and welfare services, the laws which provide and affect these services, the network of public and private agencies, and agency patterns of service.

The medical social student is enabled to understand the trends in public health as well as in public welfare, the community's organization for prevention of illness and for medical care, and the organization and administration of hospitals, public health departments, and voluntary health agencies. Study also includes discussion of medical care programs serving geographic areas and special diagnostic groups. Consideration is given to philosophy and principles of organization, scope of services, and variation in patterns among states and localities.

Supervised field work practice is a fundamental part of social work instruction. It is given under the educational direction of the school and under the immediate supervision of a qualified social worker in an agency or institution which provides social services. The student usually is required to spend two or three days a week during the entire two year program in the supervised practice of social case work.

The medical social student customarily has one year of field work in a social agency and the second year in the social service department of a hospital or health agency. As medical social work has extended into large-scale health and medical care programs under public and voluntary auspices, special attention has been given to the development of field training opportunities in these programs. A minimum of 450 hours of field work practice in a medical or health agency is provided.

The research, planned individually or in a group, includes collection, analysis, and interpretation of data. For medical social work students these projects frequently involve the use of medical social data gathered in coöperation with public and voluntary health agencies and health councils.

IV. Specific Knowledges, Skills, and Experience

The basic philosophy, knowledge, and skills in medical social work practice developed in hospitals and clinics have proved to be adaptable to the public health setting. This transfer is facilitated by the broad scope of the educational preparation for social work and by the fact that the activity of medical social workers has always extended into the community. The responsibility for assisting patients to maintain or resume life in the community requires consideration of family and community relationships and joint efforts with a wide variety of community agencies.

Medical social work practice is affected by certain factors in the public health program and setting which are not characteristic of the hospital setting. These factors include the responsibility of the health agency for service to the whole community; emphasis on preventive health and educational services; the complexities of federal-state-local relationships, particularly in official agencies; and the complex nature of coöperative relationships with a variety of professional personnel, both within the health agency and in coöperating community agencies.

V. QUALIFICATIONS FOR DIFFERENT GRADES:

1. *For the Director of Social Service*

The essential qualifications for this position are thorough knowledge of the philosophy, principles, and techniques of social case work practised in a medical setting; knowledge and understanding of the principles of public health administration and practice; and administrative ability. The director should have the ability to recruit and provide leadership to a competent staff and to develop constructive working relationships with other professional groups and with social workers in other fields.

Education: Completion of a full graduate curriculum, including an accredited medical social sequence in a school of social work.

Experience: Minimum of four years of full-time paid experience in the practice of social work in an agency maintaining acceptable standards, one year of which has included consultative, administrative, or supervisory responsibility. Two of the four years shall have been in medical social work.

This experience should include:

One year's supervised experience in social case work in a hospital or clinic whose social service department maintains acceptable standards.

One year's experience in medical social work in a health agency or an agency (other than a hospital or clinic) carrying on a program of health and medical services.

OR

Education: Completion of a full graduate curriculum with a sequence of courses in social case work in an accredited school of social work.

Experience: Minimum of five years of full-time experience in the practice of social work in an agency maintaining acceptable standards, one year of which has included consultative, administrative, or supervisory responsibility.

This experience should include:

Two years' supervised experience in medical social work in a hospital or clinic whose social service department maintains acceptable standards.

One year's experience in medical social work in a health agency or an agency (other than a hospital or clinic) carrying on a program of health and medical services.

Personal Qualities: Organizing and administrative ability; ability to establish and maintain effective working relationships with administrators, physicians, nurses, and other professional groups; ability to participate appropriately in educational activities; skill in analysis of situations and in preparation and presentation of material; physical fitness and emotional stability.

2. *For the Regional Consultant or Supervisor*

(Assigned to district or local area or local jurisdiction.)

The medical social worker in this position will work primarily in a consultant capacity to the staff of the health agency and to staffs of community social and health agencies. This worker will also provide case work service, as described in II A 2 (b). Under general supervision of the director, the regional consultant or supervisor carries responsibility for developing social services within a limited geographic area.

Education: Completion of a full graduate curriculum, including an accredited medical social sequence in a school of social work.

Experience: Minimum of two years of full-time paid experience in the practice of social work in an agency maintaining acceptable standards, of which at least one year shall be in medical social work.

This experience shall include:

One year's supervised experience in social case work in a hospital or clinic whose social service department maintains acceptable standards.

One year's experience which has included consultative, supervisory or administrative responsibility.

OR

Education: Completion of a full graduate curriculum with a sequence of courses in social case work in an accredited school of social work.

Experience: Minimum of three years of full-time paid experience in the practice of social work in an agency maintaining acceptable standards, which includes—

Two years of supervised experience in medical social work in a hospital or clinic whose social service department maintains acceptable standards, and one year's experience which preferably has included consultative, supervisory, or administrative responsibility.

Personal Qualities: Ability to establish and maintain effective working relationships with other staff members and with professional and citizens' groups; skill in analysis of situations and in preparation and presentation of material; potential ability in organization and administration of services; flexi-

bility; physical fitness, and emotional stability.

3. *For the staff worker.*

This worker's primary responsibility is the provision of social case work service under supervision of the director of social service or the regional consultant. The staff worker may also assist the supervisor in other aspects of medical social services.

Education and Experience: Completion of a full graduate curriculum including an accredited medical social sequence in a school of social work and one year's supervised experience in social case work in a hospital or clinic whose social service department maintains acceptable standards.

OR

Completion of a full graduate curriculum with a sequence of courses in social case work in an accredited school of social work and two years of supervised experience in medical social work in a hospital or clinic whose social service department maintains acceptable standards.

Personal Qualities: Ability to work effectively with physicians, nurses, and other professional groups; potential skill in promoting interest and participation of social agencies and citizens' groups in health and social services; flexibility; physical fitness, and emotional stability.

These recommended qualifications require adaptation on the basis of the scope of the agency's program and the complexity of its organization. This applies particularly to the amount and degree of experience required for the director of social services and the regional supervisor or consultant. In national agencies with broad programs, the requirements stated here for director and regional consultant should be strengthened with respect to experience in a health agency and to demonstrated competence in executive and administrative positions. In these agencies, provision should also be made for an assistant director who may have responsibility for certain aspects of the program (for example, staff development and in-service education) or may be available for special assignments in relation to the development of new programs.

Experience in a public health agency is recommended for the director of social service. For the positions of regional supervisor or consultant and staff worker, additional experience in a public health agency may be considered desirable but not a requirement. An experienced director will be able to provide orientation to the public health setting along with orientation to the program of the specific agency.

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Proposed Report on Educational and Experience Qualifications of Public Health Laboratory Workers*†

I. The General Scope of Public Health Laboratory Work

Historically the public health laboratory has been a basic instrument for the control of infectious diseases, epidemiological studies of such diseases, and environmental sanitation, and it continues to be a most important fact finding center of the health department. Because of the long standing recognition of the value of these functions, the public health laboratory has become one of the most stabilized divisions of health departments.

However, public health is not static and as the concept of its activities has grown from control of infectious diseases it has embraced the non-infectious disease, such as cancer, nephritis, and heart diseases, the problems of nutrition, mental hygiene, housing, medical care and, in fact, almost any matter that can affect the health of the citizenry. Laboratory services are as essential and valuable to many of these newer activities as they have been to the older ones. There can be little doubt, therefore, that public health laboratories must be prepared to expand the scope and volume of their activities. Another trend of recent years has been an increasing integration of hospital and public health services within communities; medical care programs for the indigent and medically indigent have greatly increased the demand for public laboratory services in many parts of the country. These demands are likely to increase and, together with new medical discoveries, will further enlarge the volume and content of the total program.

II. The Need for Public Health Laboratory Personnel

No one factor is as important to the success of this expanded program of the public health laboratory as the qualifications of laboratory personnel. The public health laboratory is a professional field of its own. It can develop its potentialities only if qualified individuals can be trained to assume responsibilities in it.

That there is a shortage of such personnel is conceded by almost all laboratory directors who find themselves unable to fill positions in their laboratories from available applicants with adequate training.

Reliable estimates place the number of professional laboratory workers needed for the present program at about one for each 10,000 population, or a total of 15,000 for the entire country. The present number certainly falls far below this figure.

III. The Functions of a Public Health Laboratory

While the scope of service and activities of public health laboratories varies to a considerable degree in individual states and localities, they will in general

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This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† This proposed report is a revision of the Report on the Educational and Experience Qualifications of Public Health Laboratory Workers approved by the Governing Council on October 13, 1943.

fit into the whole or parts of the following category of laboratory functions:

1. Examinations to aid in the diagnosis, control and treatment of communicable diseases and certain non-communicable diseases which are of community interest, such as industrial diseases, the diseases of old age, cancer, diabetes, heart disease, etc.
2. Examinations associated with diseases occurring among domestic and wild animals which are transmissible to man.
3. Examinations of water, sewage, shellfish, industrial wastes, etc.
4. Examinations of milk and dairy products, frozen desserts and similar products.
5. Examinations of foods, drugs, liquors, narcotics, and toxicological examinations, including industrial poisons.
6. Production or provision of diagnostic, prophylactic and therapeutic products such as sera, antitoxins, vaccines, antibiotics, including the operation of blood banks.
7. Examinations related to medical care programs and hospital services provided by public health authorities.
8. Field consultation services, inspection and approval of local laboratories, and licensing or approval of the personnel of local laboratories.
9. Research is an important function of every public health laboratory. It is essential to the development of new and better methods for the control and prevention of disease, and it promotes in the staff that critical attitude toward methods and results without which an acceptable standard of work cannot be maintained.

IV. Professional Abilities Required in Public Health Laboratories

The kinds of knowledge and skill required for a complete laboratory service are many and varied. As in other professions, it is necessary to recognize a division of the services into branches or specialties which have been developed in various scientific fields. Most laboratory workers, particularly in the upper levels, have training and experience qualifying them as especially skilled in one or more of the following specialties:

Pathology	Hematology	Medical Technology
Bacteriology	Mycology	Biophysics
Serology	Chemistry	Entomology
Parasitology	Biochemistry	
Virology	Toxicology	

Many larger laboratories have recognized branches or subdivisions of these broad fields and employ the services of specialists in such narrow fields as enteric disease bacteriology, syphilis serology, the chemistry of water and sewage, Rh blood service, etc.

V. The Pattern of Laboratory Organization

There is no single pattern of laboratory organization in North America. Rather, various states and provinces have developed well matured systems based on local considerations. In general these can be classified under two basic patterns: (a) A state laboratory system with a number of branch laboratories rendering localized services as an integral part of the state laboratory, and (b) A state laboratory system which fosters the development of local laboratory services under local autonomy. Most systems of laboratory service will contain small laboratory units rendering local service with the staff of only a few persons in whom must be combined several of the skills herein described. It is essential to have such small units integrated with larger systems which will provide uniformity of standards and suitable promotional opportunities. It is also essential that within any health service *all* laboratory services shall be drawn together in one system under a single competent laboratory director.

It is expected that the larger and more adequate staffed laboratories within any such system will act as reference and training centers in meeting the problems and maintaining the standards of the smaller laboratories. In addition, there have been developed within the U. S. Public Health Service and within a few of the state laboratory systems a number of laboratories for the study of special problems, which will also serve as reference centers in their specific problems. These laboratories are staffed

by highly developed specialists in their respective fields.

This report assumes that all public health laboratories are a part of a well organized health department, operating under a modern merit system, and that the laboratory together with all other divisions, is responsible for a well integrated service both within the department and within the community.

VI. The Grading of Laboratory Personnel

The grading of laboratory personnel and the assignment of suitable titles to each grade is by no means uniform throughout the country. The Association recommends the following classification of laboratory workers:

(a) The Director
(b) Assistant Director
(c) Principal Bacteriologist (or other specialist) *
(d) Associate Bacteriologist (or other specialist)
(e) Assistant Bacteriologist (or other specialist)
(f) Junior Bacteriologist (or other specialist)

The above titles comprise all professional workers and, for uniformity, the following general titles are applied to sub-professional workers:

(g) Laboratory Assistant
(h) Laboratory Helper

While the duties assigned to individuals at these various levels will vary somewhat in different laboratories, they will in general conform to the following broad statements:

The Director will be in charge of all activities of the laboratory.

The Assistant Director will aid in the administration of the laboratory, or will be in charge of a large branch laboratory.

The Principal Bacteriologist * will be in charge of all activities in the bacteriology division of the central laboratory or will be in charge of a branch bacteriological laboratory.

The Associate Bacteriologist will assist the Principal Bacteriologist in supervision of the activities of a large bacteriology division and will be directly responsible for all technical details within the division, or will be in charge of a division of a branch laboratory or of a small branch laboratory.

The Assistant Bacteriologist will work independently (i.e., technically, not administratively) within his specialty and perform the most exacting technical procedures.

The Junior Bacteriologist will perform exacting procedures under immediate supervision and will perform simple procedures independently.

The Laboratory Assistant will assist in performing routine examinations, prepare materials for examination, etc.

The Laboratory Helper will receive and check specimens, prepare media, sterilize glassware, etc.

It is expected that workers in each grade will have the ability to supervise those in lower grades of their own specialty.

It is recommended that for clarity and uniformity the above nomenclature be adopted whenever possible. It is recognized that varying situations may require a greater or lesser number of grades than the four levels of professional workers which have been provided below the Assistant Director. In any event there should be a pattern which provides for reasonable promotional opportunities, and every laboratory employing a considerable number of workers should have them spread over the range of levels in a reasonable manner.

VII. Opportunities for Career Service

Promotion in responsibility should be based not only on experience but on the expectation that additional academic

* For convenience the specialty of bacteriology has been selected as the typical specialty on which this nomenclature is based. The term Principal Chemist would be applied to chemists, Principal Pathologist to pathologists etc., throughout the entire list of specialties.

training will be secured as the worker moves from the lower to the higher levels. The ultimate balance between formal education and practical experience will have to be adjusted within each laboratory system. In general, it is to be expected that an individual of professional grade as he makes promotional progress toward the grade of director will have:

1. Training in general biology
2. Advanced special training in one or more of the scientific specialties, together with the experience and personal qualifications necessary to conduct research in one or more of them
3. Acquaintance with the biology of disease
4. Experience in a public health laboratory such as described in this report
5. Administrative experience in the various divisions of the laboratory
6. Competence to interpret the place of the laboratory in the whole health program

VIII. The Educational Background

The basic preparation for public health laboratory work should essentially be professional preparation in the medical or sanitary sciences, with emphasis on one of the scientific specialties listed above. In all cases the minimum requirement for a professional position should be a college degree. It is desirable that those anticipating a career in the laboratory should obtain fundamental undergraduate training in as many as possible of the following subjects:

Chemistry—general, organic, biochemistry, qualitative and quantitative analysis
Physics—basic principles
English—composition and report writing
Biology—general, zoology, physiology, vertebrate anatomy, biometrics
Bacteriology—general, pathogenic, immunology, serology
Other medical sciences—parasitology, mycology, hematology, blood chemistry, histological technics

IX. Postgraduate Training

In view of the need for so many different specialists in the upper levels of the profession, postgraduate studies may be undertaken in any one of the several scientific fields. Such studies, carried out at the university level leading to advanced academic degrees in connection with suitable experience, are perhaps the surest way to advancement in the profession.

However studies in the larger laboratories, in specialized laboratories, or in refresher courses and advanced training courses, such as those sponsored by the U. S. Public Health Service, are of substantial value in fitting one to become a specialist in one or more fields. In-service training courses in the worker's own laboratory may serve to broaden his knowledge and skills. It must be recognized, however, that these are only supplements to formal academic graduate training.

X. Experience Qualifications

No matter what educational qualifications a professional laboratory worker may have attained, a certain amount of experience in actual public health laboratory work is essential to advancement. This may be considered as equivalent to the internship period required for other medical specialties. It has been customary for many laboratories to permit substitution of experience for formal education on a rather lenient basis. This is a matter which must be decided according to the situations prevailing in each individual laboratory, but it would seem obvious that the higher level positions in any laboratory should be reserved for the person who possesses both formal postgraduate education and adequate experience.

XI. Salary Ranges

It is not the function of this report to suggest definite salary scales for the various levels. But to assist the laboratory in developing and retaining an efficient staff, it is strongly recommended that the desirability of providing over-

lapping salary ranges of certain levels be recognized. The salary range of the Principal (scientist) might be expected to overlap the salary range of the Assistant Director, who is the principal administrative officer. The upper levels of the Laboratory Assistants should have salary ranges which overlap the beginning salary ranges of the lower levels of professional workers so as suitably to recognize the value of the experienced sub-professional worker to the laboratory.

Salary increments over and above the usual salary range for any position should be provided for longevity of service in that position, especially to such incumbents as are unable to advance to higher positions as the length of their service increases. A graded plan of pay increments which extends throughout the period of employment should be provided for meritorious service.

XII. Qualifications for Various Grades of Laboratory Workers

The specific training and experience described below is regarded as providing the minimum qualifications for adequate laboratory service in the indicated grades. These qualifications are not intended to be retroactive, but to apply to the selection of new personnel as positions become available.

A. The Director

The director of a public health laboratory as defined in this report should possess those qualities of personality and character necessary to insure the honest and successful prosecution of scientific work. He should have an educational background in the biologic sciences at least equivalent * to the requirement for a doctorate in biologic science, public health or medicine.

In addition he should have:

(a) Five years' postgraduate practical experience and training in a laboratory of such size that experience may be obtained in the various biological sciences applicable to health and sanitary problems. Not less than two of the five years of postgraduate training and practical experience should have been devoted to training in general and special laboratory technics applicable to recognition of disease in the human family and in health and sanitary problems.

(b) At least two years' administrative experience in a properly directed public health laboratory of such size that experience in the coördination of various laboratory functions may be obtained.

B. Assistant Director

The Assistant Director should have the formal educational qualifications outlined for the Director. In addition he should have at least three years of practical experience and training in general and special laboratory technics as provided for the Director.

C. Principal (Name of specialty)

Laboratory personnel at the level of Principal should have an educational background in the biological sciences equivalent to the requirements for a doctorate, with a major in the chosen specialty and minors in appropriate related specialties. Two years' practical experience in a public health laboratory should be required.

An exception to the above general statement should be made if the selected specialty is pathology, in which case the following requirements should prevail:

C. 1. Principal Pathologist

The Principal Pathologist should have graduated from a medical school of recognized standing and should have five years of special training and experience after graduation from medical school, made up of an internship in an approved hospital, study of pathology for not less than three years in a recognized institution, and at least one year of further training or practice in pathology.

D. Associate (Name of specialty)

An Associate should have an educational background equivalent to a Master's degree, with a major in the chosen specialty and a minor in an appropriate related specialty, and at least two years of practical laboratory experience.

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* The word "equivalent" as used in this report is for the purpose of assuring that, under special conditions, certain of the requirements relating to formal education or experience may be waived, provided however that the qualifications of the applicant equal or exceed those specified.

D. 1. Associate Pathologist
An Associate Pathologist should have graduated from a medical school of recognized standing and should have had not less than one year postgraduate practical experience in the study of general and special human pathology and related medical subjects.

E. Assistant (Name of specialty)
An Assistant should have an educational background equivalent to a Master's degree with a major in his chosen specialty. Experience in a public health laboratory is desirable but not essential. However, at this level, it is customary to permit substitution of successful laboratory experience of sufficient duration to have led to a thorough understanding of some specialty for the formal postgraduate training.

F. Junior (Name of specialty)
A Junior should have an educational background equivalent to a Bachelor's degree with a major in the chosen specialty and a broad general background in the medical and sanitary sciences as indicated above.

Tabular Resumé of Training and Experience Suggested for Various Grades in this Report

Position	*Essential Degrees*	*Major Academic Emphasis*	*Years of Prior Experience Necessary*
Director	Doctorate in science, public health or medicine	Medical and biologic sciences	5, with a minimum of 2 years in a public health laboratory
Assistant Director	Doctorate in science, public health or medicine	Medical and biologic sciences	3
Principal (Name of specialty)*	Doctorate in science, public health or medicine	The specialty	2
Principal Pathologist	M.D.	Pathology	5
Associate (Name of specialty)*	Master's	The specialty	2
Associate Pathologist	M.D.	Pathology	1
Assistant (Name of specialty)*	Master's †	The specialty	-
Junior (Name of specialty)*	Bachelor's	The specialty	-

* The appropriate title should be filled in from the following list of specialists most commonly employed in public health laboratories, or other similar term when indicated:
Bacteriologist, serologist, parasitologist, virologist, hematologist, mycologist, chemist, biochemist, toxicologist, medical technologist, biophysicist, entomologist.

† A Bachelor's degree with a considerable amount of experience in the chosen specialty is generally considered a suitable substitute for the Master's degree at this level.

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WHITHER, PUBLIC HEALTH?

AN address [1] delivered last winter at the Michigan School of Public Health by Surgeon-General Leonard A. Scheele, is so notable that it deserves wide reading and study.

Dr. Scheele takes as his text the following passages from Dr. Harry S. Mustard's text on *Government in Public Health*. "A health program becomes a public health one when, because of its nature or extent, it may be solved only by systematized social action. . . . The real question at issue, then, is not so much whether the person is well or ill, or even, in the last analysis, whether rich or poor—for the rich use the sewerage system—but rather when, or if, a given problem of health and disease can no longer be solved by the unassisted effort of the citizen and the uncoördinated resources of the community." Furthermore, in the words of the American Public Health Association Subcommittee on Medical Care,[2] "Prevention no longer deals only with preventing the initial onset or occurrence of disease. It also means preventing the continuance or progress of disease which has already occurred; it means preventing the development of persistence of disability or invalidism; and of dependency, destitution, and other undesirable social effects."

Such expansions of interest into new and wider fields clearly indicate one major trend in modern public health. Not everywhere do we find a movement of this kind. Dr. Scheele recognizes that some public health services are not moving in any direction at all. "In many a program and many an agency, the only sign of life seems to be a vigorous jumping up and down in the same place." He also points out that while "in general, existing organizations are given the responsibility for administering new services in their fields—if they are qualified and are willing to discharge the trust," "if they are not qualified or if they reject the opportunity, other organizations are chosen or new ones set up to implement the will of the people."

The second major trend in public health is Synthesis. With the challenge of new tasks, it is of increasing importance that the skills of various professional groups and the administrative and educational forces of various community agencies

should be focused on the solution of each important problem. One of the most significant contributions of the United States to the underlying philosophy of health service has been along this line. In American schools of public health, and in the Annual Meetings and in the *Journal* of our Association, physicians and dentists and nurses, engineers, microbiologists, nutritionists, statisticians, and health educators, work together as members of a coöperating team, to a degree unknown in any other country. The process of integration begins even in the accumulation of that body of basic knowledge, upon which all our practice rests. As Dr. Scheele says, "Research upon localized diseases and single organs is giving way to a search for basic principles, and to study of man as a whole organism and in his social setting." The development of the National Science Foundation[3] is an important milestone along this road.

Recognition of the same need for synthesizing and integrating all possible resources for the solution of a common problem is equally clear in actual practice. It is this need which was emphasized by the creation of an Inter-Association Committee on Health—representing the American Dental Association, the American Hospital Association, the American Medical Association, the American Nurses Association, the American Public Health Association, and the American Public Welfare Association to reach "a common understanding toward the solution of health problems."

On a local level, maximum results cannot possibly be attained by the health department alone. The health officer is, indeed, the only individual directly responsible to the community for the protection of its health. He can, however, accomplish his arduous task only by joint planning and joint execution of programs in which the various professional groups and voluntary agencies concerned all play their appropriate parts. As Dr. Scheele points out, after several centuries of increasing specialization, "It may be that we are not only moving to put the human body together again in our fields of research medicine, and health services—but that we are putting together the human mind in our efforts toward social action."

In addition to this movement toward synthesis on a functional level of the knowledge and powers contributed from different fields, there is a third equally important trend toward Decentralization, on a geographical level. The federal government is contributing generously—and will contribute even more generously—toward research, and health administration and hospital construction and housing; but in every case the initiative and the planning and the administration is in state or local hands. Within the states, every effort is being made to assure more and more effective autonomous local health service on a county or district basis. To suggest that these processes imply "regimentation" is the fantastic figment of a heated imagination—if not a deliberately disingenuous attempt to appeal for suppositious votes. Exactly the reverse is the case. Federal grants-in-aid are consistently administered so as to build up and strengthen state departments; and the state departments, in turn, are making every effort to foster a sense of local responsibility for public health in every local area.

Functional disintegration and national centralization would mean that each health activity in a local area would be directed by a specialist on cancer or tuberculosis or sewage disposal in Washington. Functional integration and local decentralization aim to produce a coördinated and balanced and effective health program, planned and directed under the local autonomy of each city or county or district in the United States.

Plato (with a perhaps natural professional bias) suggested that philosophers

should be kings. General Scheele has no desire to be king; but it is fortunate for all of us that he is a philosopher.

1. Scheele, L. A. A Philosophy of Modern Health Services. 1950. School of Public Health, University of Michigan, Ann Arbor.
2. *A.J.P.H.* 39, 6:898 (July), 1949.
3. *A.J.P.H.* 40, 5:606 (May), 1950.

FOOD AND PEOPLE

IT is possible that when the 1940's are regarded from the long-range viewpoint of history, the greatest significance of the Second World War may not be in its influence on the relative powers of the United States and England, or Germany and Russia. It may well be that the most important effect of this war on the future of the human race will be the radical change which has taken place in the status of Asia and of the islands of the Pacific. Whatever else may happen, "Colonialism," in the old sense of the term, is finished. India, China, Java, Malaya are no longer pawns to be manipulated from London or Washington, from Paris or Moscow. Their fate—for better or worse—is in their own hands. They know it; and we know it. The clock, in this respect, will never be turned back.

The success with which new powers develop their political structure and their internal economy is of vital importance to all of us. The difficulties in their way are very great. It has been pointed out in this *Journal*[1] that aid to this group of peoples (visualized in the "Point IV Program") is essential if they are to take their proper place among the family of nations; and the task of planning for such aid is primarily the task of two of the specialized agencies of the United Nations, the Food and Agriculture Organization and the World Health Organization, with both of which members of the American Public Health Association are vitally concerned.

In a broad sense, the objectives of the FAO and the WHO are parallel and mutually advantageous. From a narrower and more immediate view, however, there is an apparent conflict. The prosperity and satisfaction of a given people at a given time depends on a balance between its resources and its population and the basic problems of the underdeveloped areas is that they do not produce food enough to keep their people alive. Furthermore, there are evidences that the balance has been moving in the wrong direction in recent years. A report made at the meeting of the Milbank Memorial Fund last winter[2] showed that during the decade 1938–1948, the world population increased by about 8.3 per cent, while its aggregate supplies of calories, total protein, vegetable protein, animal protein, and milk protein increased by figures ranging from 0.7 per cent to 6.4 per cent.

It is not unnatural, under these circumstances, that population experts should raise the question whether public health programs in the underdeveloped areas may do more harm than good by saving children from dysentery and young men from tuberculosis only to have them perish by malnutrition. The implied conclusion is that we should soft-pedal on WHO and go actively forward with FAO.

This is a challenge which cannot be lightly dismissed; and it has on its side the emotional reaction to which the timid are so prone, which always fears the new path and clings to the old one. On the whole, however, it does not seem to us that such fears are justified. Modern public health does not prevent death alone. It also prevents disease. For every life preserved by a tuberculosis program, scores

of individuals are saved from invalidism. For every life saved from malaria, hundreds of individuals are maintained as active producers in the population. In Greece, for example, malaria control in certain areas has vastly increased crop production.

In most underdeveloped areas it may be assumed with reasonable confidence that a combined program of health protection and agricultural (and industrial) stimulation will have, in balance, a highly favorable result on the status of the peoples concerned.

In certain areas, however, conditions are such that self-sufficiency is beyond the bounds of possibility for a population beyond a given size. Another paper presented by W. S. Thompson at the Milbank Conference[3] calls attention to the conditions in Japan where the population increased by 2.0 per cent per year in 1947–1949—a figure which Mr. Thompson believes cannot be balanced by increase in productivity within the next few years. He says that "a real catastrophe involving millions of persons may be in the making and it may very well be precipitated by the rather sudden withdrawal of American support from the economy of Japan before the Japanese have been able to make any workable adjustment of population to resources."

In even such an extreme case as this, however, it is difficult to accept the view that tuberculosis and dysentery and syphilis offer the only solution of the problem. We have, at our disposal, much more humane and more rational methods of limiting population. It is of interest to note that in the summer of 1948 the Japanese passed a broad and admirable Eugenic-Protection Law which authorizes a system of Eugenic Marriage Consultant Offices for "disseminating and elevation of necessary knowledge in relation to inheritance and other eugenic protection as well as the propagation and guidance concerning the proper method of conception adjustment." During the present year, there appeared the first issue of *The Japan Planned Parenthood Quarterly,* a most illuminating and hopeful document.[4]

In a combination of public health promotion, of improvement in agricultural status and of planned parenthood, there is real promise of establishing the underdeveloped areas of the globe in the position which they must occupy in a stable family of nations.

1. *A.J.P.H.* 40, 6:740 (June), 1950.
2. Chatfield, et al. *Milbank Mem. Fund Quart.* 28, 103, (Apr.), 1950.
3. Thompson, W. S. *Milbank Mem. Fund Quart.* 28, 191, Apr., 1950.
4. Published by The Japan Birth Control Institute, Tokyo. Vol. I, No. 1, Jan.–Mar., 1950.

THE SCHOOLS OF PUBLIC HEALTH

THE program of Accreditation of Schools of Public Health by the American Public Health Association has now completed its fifth year of operation; and it is of interest to note the progress made in this field since the schools were first inspected in 1945–46.

There were nine schools accredited for 1945–46; and ten for 1949–50. The University of Pittsburgh has been added to the list for 1950–51. The statistics quoted below refer only to the 1945–46 (or 1946–47) and 1949–50 periods.

The most striking development during these five years has been in the financial status of the schools. In 1945–46, there were two schools with actual teaching budgets under $50,000; for 1949–50, the lowest minimum for any school was $102,000. In 1945–46, the mean budget for nine schools was $138,000; in 1949–50,

the mean budget for ten schools was $292,000. In 1945–46 no school had a teaching budget over $300,000; in 1949–50, the figure for the maximum budget was $603,000. Resources have thus been more than doubled.

The same picture is revealed in the strength of the faculties. The smallest faculty in 1945–46 included 6 full-time university teachers of professorial or associate professorial rank; in 1949–50, the minimum had risen to 10. The mean figure for all schools was 10 in 1945–46 and 18 in 1949–50. The maximum faculty included 15 persons in 1945–46; and 27 in 1949–50. The fields of major emphasis are indicated by the following figures for 1949–50. Public Health Practice is represented (in the total of the ten schools) by 22 appointees; Epidemiology by 16; Microbiology, Physiology, and Sanitary Engineering, by 15 each; and Vital Statistics by 13.

One of the most encouraging features of the picture is the enormous growth of special research funds. In addition to the teaching budget of $292,000 for the average school, there is available a mean sum of $189,600 for research. In each of two schools, available research funds exceed $500,000 a year. The diversity of problems attacked and the quality of imaginative investigation under way, bode well for the evolution of the public health programs of the future.

The actual enrollment in these admirably equipped schools, however, presents a much less satisfactory picture. We have no figures of registration in 1945–46; but comparing 1946–47 with 1949–50, the mean budget of the schools has increased by 85 per cent—the number of M.P.H. students by 18 per cent. The average cost of one year's training per student has thus been materially increased. This is serious since it indicates uneconomical use of our present schools, many of which could handle more students than they have. It is still more serious when considered in relation to our actual needs. In 1949–50, the ten accredited schools had only 430 students registered for the M.P.H. degree—a figure alarmingly below the needs of the public health profession. Furthermore, only 232 of the 430 were medical graduates; and only 127 of these 232 were trainees from the United States.

The situation is serious; and is becoming more acute each year. Health departments, in every part of the country are clamoring for trained men and women to fill vacancies in their present staffs. Federal grants for the stimulation of new full-time county and district health departments are bound to come in the future; and the vistas opened by public health participation in the field of geriatrics are far-reaching. The development of multiphasic screening is likely—in the opinion of the writer—to mark one of the major milestones in the history of public health —possibly comparable with the beginnings of sanitation a century ago and of bacteriology fifty years ago.

Recruitment of personnel—both medical and non-medical—is the most urgent necessity of 1950.

THE VARYING VIRUSES

A recent Review Article by B. A. Briody on Variation in Influenza Viruses[1] will not provide light summer reading for any but virologists. Its main conclusions are, however, of interest to all of us.

This digest of 151 published papers points out the special importance of the phenomenon of variation in the group of microörganisms concerned. The causative organisms of some virus diseases are as stable as most bacterial pathogens; but in

the groups related to infections of the upper respiratory tract, the viruses are notably unstable. Sometimes variability is practically helpful to us. In the case of yellow fever, the discovery that an attenuated strain of virus could be used for the immunization of man is described as "the most important practical result of all investigations of virus diseases affecting man."

In the influenza group of viruses, however, the protean instability of the organisms concerned has, so far, proved a stubborn barrier to any methods of practical control. What are commonly called the A and B types of influenza virus are now recognized as two distinct species of the genus Tarpeia (*T. alpha* and *T. beta*). They differ widely from each other in sixteen different characters, listed by Briody (such as size, growth rate, pH range, pathogenicity, epidemicity, and immunological reaction). This is, however, only the beginning of complexities. Within each of the two species, Briody lists ten different properties which exhibit marked strain variation.

Furthermore, within each strain, there are produced, under certain conditions, temporary growth phases (O phase, H phase, D phase, etc.). These phases appear to differ markedly from each other in their transmissibility and in their ability to infect men and animals. One strain, for example, when fully adapted to growth on egg membrane, completely lost the power to infect mice and ferrets, while another strain retained its pathogenicity for these laboratory animals. Under similar conditions, again, two strains under study multiplied readily in the lung of the hamster but for six successive transfers produced no pulmonary lesions in the animals; while at the seventh passage, both strains abruptly acquired the capacity of producing pulmonary consolidation and death.

It is this extreme and—at present—unpredictable and uncontrollable variability of the influenza viruses which has so far barred the door to practical control. Serological diagnosis fails in 25 per cent of clinically diagnosed cases in reasonably clean-cut epidemics. So far as vaccines are concerned, "influenza virus, due to its great mutability, is usually one step ahead of experimental pursuit and control." Hare states that "if this is all vaccines made in eggs can do, he would rather have the eggs to eat."

The secrets of the influenza virus are elusive; but the human brain is subtle and resourceful. There are many inviting avenues of approach, aside from the use of vaccines along traditional lines. Briody suggests such possibilities as the application of vaccines or of hyperimmune serum by inhalation, or the strengthening of the inhibitive powers of the mucoid coatings of the respiratory tract (studied by Burnet). We are confident that some day our virologists will find the road to victory.

1. *Bact. Rev.* 14:65 (Mar.), 1950.

Credit Lines

YOUR COMMUNITY IS WHAT YOU MAKE IT

How you find out what is going on in your home town by way of being neighborly, in the Biblical sense, and further, how to do what needs to be done is the essential theme of *Your Home Town*. Written by one author, Earle Lippincott, it is nevertheless, on his authority, the distilled "experience of many workers and other citizens who strive for good health and welfare services in our communities." An advisory committee of 14, drawn from many activities and many places thrashed out its main elements in six day long sessions and some 40 others read, criticised, and added to it.

The paper-bound volume is written in a simple readable style on good paper and in large type, which ought to help the final admonition—"We have talked about what to do and how to go about it. You take it from here." The members of the National Social Welfare Assembly are listed but not of its opposite number, the National Health Council, although the booklet deals throughout with both health and welfare.

The work is rooted in the experience of the author as staff member of the Department of Social Work Administration of the Russell Sage Foundation. He is now program secretary of the United Health and Welfare Fund of Michigan.

The book is published by the Association Press (Y.M.C.A.) from which it is available at $1. 291 Broadway, New York City.

HUMANIZING THE LINGO OF THE LAW

The public health set-up of Missouri has at least two unique features. The first is that the division of health is part of the larger department of public health and welfare, a situation that is true only in Maine among the other 47 states. Missouri's Health Center Act passed in 1947, however, is without parallel in any of the other states. It provides for a local board of health made up of a corporate body of at least 250 resident members paying minimum annual dues of one dollar. How this law works is uniquely described in *A County Health Department Protects—the Family*. But the sections of the law are interspersed with actual photographs of various activities of the already organized county health departments in the state. In this way all the basic services are illustrated as well as some of the techniques used in getting the service. The caption on one county health center building reports that it was bought with $100 contributions from each of 25 businessmen, another, that land was given by a local physician. Missouri Department of Public Health & Welfare, Jefferson City.

MENTAL HEALTH INSTITUTE IN UTAH

There has in the past several years been discussion of coöperation among the Rocky Mountain states in support of the two existing medical schools in that area. What might be considered a step in that direction is represented by a recent two week Mental Health Institute for Public Health Physicians held in Salt Lake City under the auspices of the University of Utah School of Medicine. Made possible by a grant from the U. S. Public Health Service, it served public health workers in the 10 states of the Intermountain area. The institute was under the direction of Jules V. Coleman, M.D., associate professor of psychiatry at the University of Colorado School of Medicine. Faculty members

were drawn from six different states between Utah and Connecticut.

PROSTITUTION RACKET UPS AND DOWNS

The February *Bulletin of the American Social Hygiene Association* has a simple graph portraying community conditions as to commercialized prostitution in 1,224 communities over a ten year period. The "bad" conditions went down from 33 per cent in 1940 to 6 per cent in 1944, back up to 38 per cent in 1948 and down again to 18 per cent in 1949, the largest decrease in a single year. "Good" conditions were found in 51 per cent of the communities in 1949, the highest in any year. This bulletin also shows some of the charts of a new graphic exhibit prepared by the Association. 1790 Broadway, New York 19.

THE VIRGINIA ALCOHOLISM PROGRAM

The Virginia State Health Department has a Division of Alcohol Studies and Rehabilitation created by the General Assembly of 1948. It is said to be the first state with an alcohol control program in the department of health. The division has made its first report entitled simply *DASR*. It tells the results of the first year of a pilot study in the treatment and rehabilitation of victims of alcoholism. It's an attractive pamphlet, short, readable, and suggestive for similar programs being planned elsewhere. L. J. Roper, M.D., is State Health Commissioner, and medical director of the division is Ebbe Curtis Hoff, M.D.

HOPEFUL NOTE FOR CEREBRAL PALSY

The Public Affairs Committee, in cooperation with the National Society for Crippled Children and Adults, has published its pamphlet No. 158 on *Help at Last for Cerebral Palsy*. It describes the advances that have been made in treating this disability which afflicts more than a half million persons in the United States. The pamphlet is being distributed by the National Society for Crippled Children and Adults (11 South LaSalle St., Chicago 3), which uses some of its Easter Seals funds to recruit and train workers for cerebral palsy services.

"QUIET—PEOPLE AT WORK"

An opportunity to get insight, inspiration, and new interest in health councils is available in this attractive, concentrated digest of a national interagency conference. Some 75,000 words from experts whose names you will readily recognize are skillfully woven into a useful, easily read 42 page document. Get it from the National Health Council, 1790 Broadway, New York 19. Free —supply limited!

THE PRENATAL PIERRE THE PELICAN

The Pierre the Pelican Prenatal Series is designed particularly for the parents-to-be of first-born children. It is planned for monthly distribution beginning with the second month of pregnancy. In informal, conversational, and friendly fashion it helps the expectant parents to meet the new situation naturally and happily. In its preparation, Loyd D. Rowland, Ph.D., director of the Louisiana Society for Mental Health, had the benefit of a battery of two dozen "critic readers," from Leona Baumgartner, M.D., to Kent A. Zimmerman, M.D. Louisiana Society for Mental Health, 816 Hibernia Bldg., New Orleans 12. No information as to price.

TUBERCULOSIS EDUCATION MATERIALS

The National Tuberculosis Association announces its newest motion picture, "Coming Home." It is the story of a typical family's experiences from the time the wage earner was diagnosed as tuberculous until he was back home cured. It is 16 mm and can be secured from state and local tuberculosis associations.

Also on spring publication list of the Association's Health Education Division are:

Some Suggestions for Writing Health Materials—discusses seven basic writing techniques, and presents a scale of graded reading paragraphs and a health vocabulary. It was written by Professor Edgar Dale and Hilda Hager, Ohio State University, as one of the reports made in connection with the recently completed survey of the education program of the N.T.A.

Administrators Conference on School Health—A report of the proceedings of a regional administrators' conference on school health at Stony Brook, N. Y., jointly sponsored by the American Association of School Administrators, the National Tuberculosis Association, and the U. S. Office of Education.

Patient Education at Rutland Heights—A report of a demonstration and study conducted at the Veterans Administration Tuberculosis Hospital.

Tuberculosis among Hospital Personnel—A review of numerous published surveys of tuberculosis among hospital personnel—Eleanor C. Connolly.

HEALTH EDUCATION VIA HEALTH FAIR

Cleveland had its first Health Fair in the spring of 1950 at its newest health center, the Newton D. Baker. Some 4,000 persons came and went; 1,000 of them had dental x-rays, nearly 500 had chest x-rays and blood tests, and nearly 400 had vision tests of whom nearly one-quarter were found to have poor vision. But the real payoff that "the health education process was in operation," came later in the number of instances in which those who were at the fair came back to the center to join the expectant parents' class, to ask for cancer advice, etc., because of what they had learned at the fair.

MULTI-TESTS IN RICHMOND, VA.

The Red Cross Courier of June, 1950, tells a breezy story of "one of the first free mass multi-test clinics for chronic diseases in the United States." It started in Richmond, Va., on a morning in January, 1950, and has gone on through seven months, three months in two big department stores, and the remaining time as a mobile unit at colleges, factories, and churches. It was a real community project planned by the Academy of Medicine, the Community Council, the City and State Health Departments, the Public Health Service, the Tuberculosis, Visiting Nurse, Heart, Diabetes, and Mental Hygiene Associations. During the multi-test screening about 60,000 persons, a fourth of the city's population, were examined and reports sent to their physicians in this pilot study to provide information as to how much of the chronic disease problem may be reduced by early diagnosis and treatment and how much provision must be made for meeting the problems of a population facing diseases of old age.

Red Cross "gray lady," nurse, and canteen volunteers manned the clinics and organized the volunteer service that helped to make the screening possible.

HEALTH FACTS MADE POPULAR

The Adult Education and Extension Service of the University of Missouri has begun "a series of popular bulletins which we hope will make known to the people of Missouri health facts of interest to them." The first two bear the titles respectively of *The First Hundred Years Are the Hardest*, which reviews the current situation as to life expectancy, and *Eleven Million Grandparents*, which sets the stage for citizen thinking about the health, work with retirement, housing, recreation, and education needs of those reaching the later years of the ever lengthening span of life.

Both brochures were prepared by Robert L. McNamara of the Department of Rural Sociology, both are highly readable and down-to-earth and illustrated with amusing black and white drawings. Both are University of Missouri Bulletins, the first, Vol. 51, No. 14,

Extension Series No. 119; the second, Vol. 51, No. 26, E. S. No. 121, dated respectively May 10 and September 10, 1950. Room 102, Building T-3, Columbia, Mo. No information as to price.

WORTH ACQUIRING

Bicycle Safety in Action has been prepared by the National Commission on Safety Education of the National Education Association to assist schools in teaching bicycle safety. They remind us that bicycles are in greater use now than in the gay nineties—18,000,000 bicycle riders of whom about 90 per cent are children. Illustrated with drawings, it gives many practical suggestions for teaching opportunities in bicycle safety. National Education Association, 1201 Sixteenth St., N.W., Washington 6, D.C., 50 cents—discounts for quantity orders.

Sexual Behavior: How Shall We Define and Motivate What Is Acceptable? is the notes from a panel discussion held in connection with the 1950 annual Social Hygiene Day sponsored by the American Social Hygiene Association. The participants were a social worker, an anthropologist, a mental hygienist and Protestant clergyman, a Catholic priest, and a professor of philosophy. It constitutes a stimulating and provocative symposium. American Social Hygiene Association, 1790 Broadway, New York, 25¢; $2.50 per dozen; $18 per 100.

Active Immunization against Common Communicable Diseases of Childhood, No. 6 of the WHO Technical Report Series, is an interesting attempt to get at useful principles and recommendations on a world-wide scale. Recommended practices for diphtheria follow conservative practice here and note is made that routine immunization does not apply in the tropics. "The experts did not feel that the time was ripe for officially recommending a world-wide routine anti-pertussis vaccination of all children." Columbia University Press, International Documents Service, 2690 Broadway, New York 27. 15¢.

How To Turn Ideas into Pictures is the 8th in the How-to-do-it Manuals of the National Publicity Council. Written and illustrated by H. E. Kleinschmidt, M.D., it is described as "a simple method of illustrating publicity and educational materials." The illustrations are what the manual is all about. He says you needn't be an artist but only be able to make the strokes of TO and △ to draw Adam and Eve. The real job is hatching ideas and then visualizing them. You will have fun reading his pamphlet and he wants you to have fun getting your ideas across. National Publicity Council, 257 Fourth Ave., New York 10, $1.00.

For Your Baby's Mental Health is a three panel folding exhibit poster designed to help in starting the new baby on the right road to mental and emotional health. The emphasis is upon happiness and relaxation rather than rigidity in schedules. "Love + patience + common sense for a mentally healthy baby." The chart, accompanied by an explanatory booklet is done in attractive baby blues and pinks. But one could wish that the baby himself looked a little less like a frog. Produced in cooperation with the National Institute of Mental Health. Made of durable chestnut board. Health Publications Institute, Raleigh, N. C., $5, reduction for quantity orders.

ANNUAL REPORTS

Toward a Long and Healthful Life is the title of the two year report of the Colorado Department of Public Health. "The traditional method of reporting by Sections," it says, "has been abandoned because the concept of working by Sections has largely been abandoned. It is

the public health team that does the job." The result is a report that tells about the many services, each with a photograph and a few lines of narrative.

Particularly interesting among the special programs is preventive medical service for migrant workers. In April and May of 1949 about 12,500 migrant laborers at the Fort Lupton Labor Camp were given chest x-rays, smallpox vaccination, vermin and mite inspection, examination for communicable diseases, and supervision of acute illnesses found with referral for private medical service in suitable instances. After this process half of the workers were sent to neighboring states — Montana, Nebraska, and Wyoming.

In addition to its content interest, the report is excellently produced with clear printing and photography and good maps and charts.

Blueprint of Action is the 1949 report of the New York Tuberculosis and Health Association. It announces itself as "a quick picture of the part the Association plays in helping to control the current increase of tuberculosis in New York City," and in the telling it does not forget that many other persons and agencies have a part in this program. N. Y. Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

What Can We Learn from New Guinea, with palm leaf and thatched roof illustrations, is the title of the 1949 annual report of the Maternity Center Association. Just a three page folder, it confines itself to the progress being made in restoring childbearing "to life and health and joy" and freeing it from "its aura of disease and death" — a progress in which the Maternity Center Association has enthusiastically shared. And why the reference to New Guinea — because its infant and maternal mortality rates are as good as can be found anywhere in the world. "The best results in childbearing are achieved among two groups of people — the primitives and the most highly civilized." 654 Madison Ave., New York 12.

National Social Welfare Assembly 1949 Annual Report — is a dignified factual report of this central national organization for social welfare made up of 56 affiliate organizations and 4 associate groups. The variety of its interests is local, national, and international. It describes itself as nationally what a community welfare council is locally, namely, a mechanism for planning and acting together. National Social Welfare Assembly, 1790 Broadway, New York 19.

Kay Press — Local Newspapers Get Health Facts — is in effect the 1949 report of the Kay County (Okla.) Health Department. However, it is wholly made up of articles appearing in four newspapers of the county and written by their staff writers. The articles were based largely on the data appearing in the county's 1949 A.P.H.A. *Evaluation Schedule,* "which," to quote the foreword, "the county health department prepares as a searching annual inquiry into its own problems, accomplishments, and deficiencies, and as a means of comparing this health unit with others that also submit evaluation schedules." The Health Officer of Kay County is N. H. Cooper, M.D., with headquarters in Ponca City.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Practical Statistics in Health and Medical Work—*By Ruth Rice Puffer. New York: McGraw-Hill,* 1950. 238 pp. Price, $3.75.

This welcome addition to the small number of textbooks on public health statistics is unique in its approach to the problem of collecting and analyzing many kinds of data for the purpose of planning and evaluating the programs of a modern health department. Its emphasis is on the need for definition of objectives, for collection and analysis of data to answer specific questions, and on the role of the statistician as a member of a team of specialists working on a problem. It is not so much a book on statistical methods as on the application of these methods, based on the author's many years of experience as Director of Statistical Service in the Tennessee Department of Health.

The book is particularly valuable for its discussion of prevalence and incidence of disease, and the comprehensive presentation of the methods used in "longitudinal" studies, first designed by the late Dr. Frost to describe the development of disease in observed populations over a period of time. The chapters on the handling of various types of records and the presentation of data are also excellent. The bibliographies appended to each chapter would in themselves make the book worth owning.

The author quotes from Bowley: "In collection and tabulation, common sense is the chief requisite, and experience the chief teacher." By sharing her own wide experience with the reader, Dr. Puffer has produced a book which should be equally stimulating to statisticians, health officers, and other public health workers. ELIZABETH PARKHURST

Recent Advances in Social Medicine—*By Alan Carruth Stevenson. Philadelphia: Blakiston,* 1950. 241 pp. Price, $4.00.

This book discusses a small group of subjects within the broad area of the social relations of health and disease. The topics dealt with are: measurement of growth in children; infant mortality; the health of children in communal day nurseries; the unmarried mother and her child; problem families; school medical inspection; a discussion of some statistical methods that may be used in arriving at a quantitative assessment of the influence of man's environment on his health; last of all, brief notes on the adolescent in industry, psychosomatic illness and social medicine, and "Pulheems"—the system of medical classification for service used by the British and the Canadians during the recent war.

Inevitably there is some overlapping with the fields of public health and preventive medicine as we know them in this country. But while social medicine does overlap, the emphasis is quite different. This is evident in the discussion of unwed mothers, problem families, and day nurseries—subjects not usually considered in public health. Equally in the other chapters the emphasis is on the important social ramifications of medicine.

Dr. Stevenson presents, as far as possible, the latest work on the topics he has chosen. Of considerable interest is his review of the various efforts to assess state of nutrition and growth by anthropometry. The chapter on applications of statistical methods is written by Dr. E. A. Cheeseman. The author discusses the "social class" grouping employed by the Registrar General in com-

piling mortality statistics, and its usefulness in demonstrating general social trends of mortality. Cheeseman then presents the analysis of data relating to health and environment through the use of regression equations. In the chapter on school medical service, the question of employing some method of screening out children requiring special attention is the chief topic. Reference is made to the Astoria Demonstration. In general, there is discussion of the relevant American literature.

This book is attractively bound and printed, and has an index. It is recommended to all public health workers who wish to get a fresh slant on some problems of importance. GEORGE ROSEN

Child Treatment and the Therapy of Play—*By Lydia Jackson and Kathleen M. Todd, forewords by Helen Ross and Emanuel Miller. (2nd ed.) New York: Ronald Press,* 1950. 159 pp. Price, $2.50.

The axiom of this concise little book is: "Much unhappiness inhibits growth of normal mental life due to poor adaptation in childhood." Therefore, "The child is father to the man," and early recognition and treatment of neuroses in childhood will lead to ever-increasing circles of happiness through "ability to resolve conflicts by deliberate choice and conscious control." The authors explain why "deeper understanding of the child's fantasy life (is) so clearly disclosed in play." They warn that play therapy is a highly specialized branch of child treatment. They discuss its uses as a therapeutic method.

The word choice and sentence structure are admirable. One frequently wants to quote verbatim when ideas are so clearly expressed. The eight chapters, from the first discussion of "Theories of Play," to the final chapter, "Some Aspects and Phases of Therapeutic Play," are full of interesting material and explanatory anecdotes, mostly from the authors' own experience. This whole subject is fairly new and to read of the authors' results will be encouraging to child guidance clinic supporters. The last chapter discusses obsessional states in childhood at length, and is therefore of particular interest to child guidance and psychiatric personnel.

The second edition, published in America, is practically the same as the first, published in England in 1946. The American edition has a short foreword by Helen Ross, Administrative Director of the Chicago Institute for Psychoanalysis, and has larger print and better paper. The bibliography is the same, and there is no reference date later than 1943. Some of the material in the text is as late as 1946, but one would think the authors had learned something in the intervening years between the two editions.

This is a book that any intelligent parent or pediatric worker would want to read and wish it contained more, many more than eight chapters.

PAULINE BAND HIRSCH

Communicable Disease Nursing—*By Theresa I. Lynch. (2nd ed.) St. Louis: Mosby,* 1949. 776 pp. 131 illus. Price, $4.75.

The author covers much new ground and does it well. Several disease entities have been added to this edition and new concepts of treatment, control, and nursing care have been included.

The five parts of the book are arranged in complete units. Part one, orientation to communicable disease nursing, is concise and well developed. As necessary documentation is not provided, there is no way to determine the validity of an occasional dogmatic statement. However, this does not detract from the unit's overall value.

With the exception of tuberculosis and the venereal diseases, the medical aspects and nursing care of communicable diseases grouped according to five

modes of spread are presented in part two. The accuracy of a few statements in this unit is questionable. The sections on nursing care and treatment include many details. As these vary considerably in general practice, these sections might be more useful if principles had been emphasized.

Significant areas on tuberculosis and the venereal diseases are summarized in parts three and four. The discussion on home nursing care is well presented in part five, the unit on communicable diseases and the community. On the whole, the illustrations seem well selected. The bibliography and suggested reading list at the end of each chapter invite a more extensive understanding.

This book should continue to be a useful tool for all nurses concerned with communicable diseases.

L. DOROTHY CARROLL

Counseling the Handicapped in the Rehabilitation Process—*By Kenneth W. Hamilton. New York: Ronald Press,* 1950. 296 pp. Price, $3.50.

Great emphasis is placed by the author upon the need for individualized and coördinated professional services in bringing about the effective rehabilitation of a handicapped person. The rehabilitation counselor is thought of as being the essential link between the disabled individual and the various agencies that may render services to him. Because of the central position of the counselor's function the author attempts to survey the entire process of rehabilitation, from case finding to selective placement, in terms of its counseling requirements. Part of the book is devoted to community organization for rehabilitation, the counselor's functions in this connection, and the functions of a rehabilitation center.

It is to be expected that whenever an author tries to cover so many topics in a book of about 300 pages some parts of the book will appear sketchy (for example, Part IV of the book, consisting of 20-odd pages, is entitled "Evaluating the Results of Rehabilitation"). However, it is likely that all who counsel the handicapped (social workers, psychologists, physicians, therapists, employment counselors, etc.) will find some parts of the book useful to them as professional workers.

LOUIS LONG

Health Education in Elementary Schools. Activities — Materials — Methods—*By Helen Leslie Coops. New York: Barnes and Co.,* 1950. 279 pp. Price, $3.50.

A refreshing approach to health education activities, materials, and methods in elementary schools is presented in this new book for teachers. The author, drawing upon her experiences in teacher education and as a consultant in health education, provides the reader with many practical suggestions for the teaching of health.

The book is divided into four sections. In the first section, a setting is given for what is to follow by sketches of adult personalities involved in the problems of modern living. This section is "concerned with some of the essential meanings of health education as mature individuals understand them, entirely apart from the profession of teaching." The second section is devoted to a discussion of organization and planning for health education. Methods for curriculum development and activity organization are suggested.

The real meat is found in the last half of the book. In Section Three are described many activities which have proved effective in actual classroom situations. Emphasis is on pupil activity planning. Teaching units which grew out of actual classroom situations form the content of Section Four. While the second and third sections deal primarily with how to do it, the fourth focuses on how it can be done.

The author shows originality in the

presentation of health and educational principles as applied to health teaching of younger children. Her own diagrams and drawings are often used to illustrate a point. Her emphasis is on "health education as a potent force in happy and effective everyday living," and the illustrative materials are in keeping with this emphasis. The book should be a useful reference for both the preservice and inservice education of elementary teachers.

RUTH E. GROUT

Cancer: A Manual for Practitioners—*By The American Cancer Society (Massachusetts Division) Inc. (2nd ed.) Boston,* 1950. 308 pp. Price, $2.00 per single copy. $1.50 for quantities of 100 or more.

This second edition as published by the Massachusetts Division of the American Cancer Society is a recommended volume which summarizes from a great variety of sources dependable information which should be at the disposal of practitioners, and which will also prove a resource to public health nurses and others who come into contact with many people.

The Committee on Publication under the Chairmanship of Dr. Ernest M. Daland, with five other distinguished physicians on the committee, guarantees the reliability of the volume and the authors themselves are leaders in the cancer field. This volume has been produced in coöperation with the Division of Cancer and Other Chronic Diseases of the Massachusetts Department of Public Health.

REGINALD M. ATWATER

New Discoveries in Medicine—Their Effect on the Public Health—*By Paul R. Hawley. New York: Columbia University Press,* 1950. 134 pp. Price, $2.50.

The comprehensive title of this little book leads one to expect well documented material in the fields of medicine and surgery, pediatrics and obstetrics. In reality it is made up of seven relatively short sections originally presented in "talks" at Columbia University as the Bampton Lectures in America. The lectures were given largely in non-technical language and are of considerable popular interest but present very little actually new that has a direct bearing on the public health as generally understood. Recent work in immunization, in antibiotics, and the use of isotopes is given scanty attention. The procedures described in "Modern Surgery of the Heart and Lungs" and in "Modern Prevention and Treatment of Mental Disease," especially "Psychosurgery" on the frontal lobes, are interesting and exciting but have been applied to relatively so few selected cases it is difficult to assess their value to the public health. The last two sections on "The Socio-Economic Aspects of Medical Care" are a frank plea for voluntary health insurance and a condemnation of so-called compulsory health insurance. Very little new has been brought out, as practically all of the arguments pro and con have been emphasized from time to time since Bismarck and Lloyd George first set up systems of compulsory insurance.

RICHARD ARTHUR BOLT

Conference on Problems of Aging. Transactions of the Tenth and Eleventh Conferences, 1948, 1949, New York, N. Y.—*Edited by Nathan W. Shock. New York: Josiah Macy, Jr. Foundation,* 1950. 258 pp. Price, $3.75.

The volume presents a series of papers and discussions on many aspects of the problem of aging. They mostly concern animal experiments. The book is particularly useful as a reference for those doing research in this field. The best chapter is "The Pathology of Senescent Animals." The extensive chapter on care of animals is a useful by-product. The editor has prepared a bibliography which materially enhances

the value of the volume. The volume reflects some European as well as American practice. The interesting method of the Macy Foundation of conducting annual short conferences by eminently qualified experts has been productive.

R. P. KANDLE

Tuberculosis. A Global Study in Social Pathology—*By John B. McDougall. Baltimore: Williams & Wilkins,* 1949. 455 pp. Price, $6.00.

The aim and scope of the book is well expressed in its subtitle. The stupendous literature concerning the epidemiology of tuberculosis has been reviewed with the aid of many tables and graphs. A detailed résumé of mortality statistics, recent surveys of infection by tuberculin tests, of morbidity by x-ray examinations and of publications on special aspects of the epidemiology of tuberculosis shows that fairly accurate information is available from those countries in which medical practice is well advanced; whereas from countries representing a much larger population, including Russia, China, and India, there is scant knowledge of the frequency and distribution of the disease and none about its increase or diminution. Within individual countries little information seems to have been available concerning the relative frequency of tuberculosis in urban and rural communities. The author assembles convincing evidence that surveys by means of tuberculin tests and x-ray examinations furnish valuable information concerning the frequency of tuberculosis in countries where measures for the protection of public health are so meager that mortality statistics are lacking or misleading, and he tabulates in accessible form a large part of the numerous surveys that have been made in recent years. He reviews the information that is available about the use of BCG. When he considers questions of public health he is evidently on familiar ground. In his discussion of transmission, resistance and pathogenesis he is inclined to cite opinions rather than the observations upon which they are based.

EUGENE L. OPIE

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners. Part III. Appraisal of Neighborhood Environment. *New York: Committee on the Hygiene of Housing, American Public Health Association,* 1950. 132 pp. Price, $3.00.

This manual on the *Appraisal of Neighborhood Environment* constitutes Part III, the final volume of a series which describes in detail *An Appraisal Method for Measuring the Quality of Housing.* Part I, published in 1945, sets forth the general *Nature and Uses of the Method,* covering both the dwelling and its environment; Part II, *Appraisal of Dwelling Conditions,* published in 1946, provides detailed information and instructions on the appraisal of the dwelling itself; Part III, the present volume, gives similarly detailed information and instructions on the appraisal of the neighborhood environment surrounding the dwelling.

The purpose achieved by the committee and its staff is to provide an objective, standardized method for evaluating housing conditions to be used by the health officer as a tool, as he uses standardized technique in making restaurant surveys. Ten cities have now been surveyed, and the U. S. Public Health Service, which participated in the development of the method, conducts courses at Atlanta, Ga., and at Syracuse, N. Y., to train personnel from city health departments in actual survey operation. The Service also will give general guidance in the field, on request, thus providing an outstanding example of an official agency taking on a service initiated by a voluntary agency.

The progressive health officer, as well as the city planner and the housing official, should utilize this *Appraisal Method* in his program, and accordingly, the present volume merits his attention. As a short cut to a quick grasp of the material, he is advised to read first the concluding chapter, number five, in which the survey findings for the Germantown neighborhood of Philadelphia are presented, analyzed, and a course of remedial action formulated. A helpful detail to recognize at the start is the fact that the method uses a system of penalty scoring rather than positive scoring, that is, the higher the arithmetic score of a condition being judged, the more substandard is the situation.

P. E. NELBACH

The Common Infectious Diseases —*By H. Stanley Banks. Baltimore, Md.: Williams & Wilkins,* 1949. 354 pp. Price, $4.50.

This small volume describing some of the common infectious diseases is based upon the broad experience of the author in hospitals and teaching institutions in England. The subject matter is well organized, readable, and succinctly presented. Eighteen of the more common infectious diseases occurring in England are considered, with diphtheria and meningococcal fever receiving the greatest attention.

The major portion of the discussions is devoted to the clinical aspects of infectious diseases, including symptomatology, diagnosis, and treatment; and less attention is given to epidemiology, bacteriology, immunology, and prophylaxis.

The author has succeeded very well in bringing together in this small volume the recent advances in knowledge about these diseases and their therapy. In several instances, however, statements are made authoritatively with little or no documentation on certain points which are often considered more guardedly by other workers in the field of infectious diseases. Relatively few references are given at the end of each chapter.

This volume brings to light some differences that exist between England and the United States in the manifestation and management of infectious diseases, but this does not detract from its usefulness to American physicians. Illustrations of rashes, throat lesions, and other clinical signs of diagnostic importance are attempted without too much success by the use of black and white reproductions.

Physicians whose practice includes the care of infectious diseases, medical students, and staff members of hospitals which treat infectious diseases will find this book very helpful.

KIRK T. MOSLEY

Cost Analysis for Public Health Nursing Services. *New York: National Organization for Public Health Nursing,* 1950. 104 pp. Price, $2.00.

Here is a detailed manual of cost analysis suited to meet the needs of both official and voluntary agencies which could be used to compute the costs of a unit of service, such as a visit or clinic session; cost of a program, such as maternity and tuberculosis; or the cost of a unit of time, such as a nurse hour or a student day. The manual is simply written and more than half is devoted to very helpful illustrations. This is the distinctly modern version of the work begun in 1922. This study began in 1945. The method had extensive field trials in 73 public health agencies, both official and voluntary. It appears to be applicable to many types of public health work and deserves careful study and application by public health administrators. The Statistical Service of the N.O.P.H.N. offers assistance in applying the method.

The detailed results of the above study and field trials are reported in *A*

Report on the Study of Costs in Public Health Nursing, $.75. Here are highly useful tables and charts recording the ranges of activity; such as minutes per type of nursing visit, the total minutes per visit, costs per visit, and a great many more details.

"It is extremely important to use the same methods in finding cost if interagency comparisons are to be made. There is more than one correct way to calculate costs and the use of different methods may result in different unit costs. If comparisons are desired, agencies must conform to and use the same method. Unfortunately we still have no satisfactory method of measuring either the quality of public health nursing or its ultimate results."

Not all questions which an alert administrator will have are answered by any means, but this study and report "mark another milestone toward official business-like administration in public health nursing." No serious health officer can afford not to be acquainted with these volumes. ROSCOE P. KANDLE

Surface-Active Quaternary Ammonium Germicides — *By Carl A. Lawrence. New York: Academic Press*, 1950. 245 pp. Price, $6.00.

This work includes a comprehensive discussion of the chemistry, pharmacology, physical properties, biological and toxic effects of the important groups of compounds called quaternary ammonium germicides. An excellent discussion is included of the practical applications of these germicides in surgery, in general disinfection, and in industrial use. The author covers such uses of special interest to sanitarians as the disinfection of eating and drinking utensils, dairy and food processing utensils and equipment. Special applications as to clothing in the laundering process and to paper are discussed. A study of the application of quaternary ammonium compounds to drinking water also is cited. The book includes a list of these complex surface-active agents and germicides as well as more than 500 references to the literature. It is a good source of information on the composition and practical application of these complex germicides for the use of physicians, health officers, sanitarians, and others who must deal with them.

W. D. TIEDEMAN

The Market-Milk Industry — *By Chester L. Roadhouse and James L. Henderson (2nd ed.). New York: McGraw-Hill*, 1950. 716 pp. Price, $7.00.

Every health department should have in its library a copy of this excellent and comprehensive book on the market-milk industry. It should be in the hands of every milk sanitarian and public health engineer who has responsibility for the supervision of a milk supply. Certainly, the milk plant operator and the student of dairy technology will find this textbook practically indispensable. The authors have collected a great deal of valuable material and, in the preparation of this second edition, for the most part, have brought the information up to date and have introduced new material that will be useful to the reader. Unfortunately, some of the tabular material is outdated and difficult to interpret in terms of 1950 economic conditions. The economist or businessman would need to look elsewhere for current data. The authors have brought together a great deal of useful information about milk for anyone interested in milk itself, its production, transportation, handling, processing, distribution, and consumption. The public health aspects and quality control procedures have been discussed and outlined very satisfactorily. It will serve as a most useful textbook, handbook, and reference for anyone interested in this important segment of the dairy industry. The book is preëminent in its field.

HAROLD MACY

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Industrial Fad?—As you would anticipate, this committee says to employers who are toying with the idea of issuing vitamin pills to industrial workers: don't do it. Providing the opportunity for employees to buy nutritious meals in company cafeterias is quite another matter.

ANON. Indiscriminate Administration of Vitamins to Workers in Industry. *Arch. Ind. Hyg. & Occup. Med.* 1, 5:573 (May), 1950.

Pedagogy Is a Science—Several reasons why some health workers do not achieve the educative possibilities inherent in the health services they render.

ANDERSON, E. J. Ideological Barriers to Effective Teaching by Health Workers. *Pub. Health Rep.* 65, 20 (May 19), 1950.

H. I. P. Is Three—Preventive as well as diagnostic and treatment services are being rendered to 235,000 New Yorkers without financial deterrents to complete medical and nursing care. Only 8.9 per cent of the total services are given in hospitals.

BAEHR, G. Health Insurance Plan of Greater New York. *J. A. M. A.* 143, 7:637 (June 17), 1950.

With Rats It Was Different—Add this to your department of miscellaneous information: nutritionally depleted patients treated with toxoid produced diphtheria antibody as well as, or better than, healthy controls.

BALCH, H. H. Relation of Nutritional Deficiency in Man to Antibody Production. *J. Immunol.* 64, 5:397 (May), 1950.

Handicaps vs. Capabilities—Six presentations of a symposium on diabetes in industry held at the Mellon institute. The title should tell you whether or not you will profit by hunting out the six. No one-sentence annotation can help you much.

BARACH, J. H., *et al.* Diabetes in Industry. *Ind. Med. & Surgery* 19, 6:257 (June), 1950.

Of, and By, the You-Know-What—Seven factors making for productivity of community health councils are briefly—a little too briefly—examined.

BLACKWELL, G. W. The Social Scientist Looks at the Health Council Movement. *Pub. Health Nursing* 42, 6:316 (June), 1950.

With Russia Abstaining—Though most of this story of world health activities must have appeared in our American journals, here in one issue you will find seven papers that cover WHO and all its works from scope to scholars.

CHISHOLM, B., *et al.* The World Health Organization (and six companion papers). *Brit. M. J.* 4661:1021 (May 6), 1950.

Two Per Cent for Health Centers—You must at least be curious about this topic if you haven't an immediate interest in it. The paper takes stock of the hospital construction program telling about the kinds of projects approved, types of facilities, size of hospitals, and where located.

CRONIN, J. W., *et al.* Hospital Construction Under the Hill-Burton Program. *Pub. Health Rep.* 65, 23:743 (June 9), 1950.

Polio Plus—Here is the final score on the 1949 polio epidemic: *reported* cases were the highest ever but the death rates have been higher three times in the past—in 1916, 1927, and 1931. Caution is needed in interpreting mor-

bidity data, the paper suggests. Other virus infections probably are included.

DAUER, C. C. Prevalence of Poliomyelitis in 1949. *Pub. Health Rep.* 65, 24:782 (June 16), 1950.

Rattus Rattus and Relatives—To control them, you must first know your rats. Part I explains why we have failed to date. Parts II and III will outline prevailing programs and solutions. Even the most solidly ivory-towered among us should know about rats.

HENDERSON, J. M. Urban Rats and Their Control. *Modern San.* 6, 2 (et sec.):16 (June), 1950.

Straight from the Mayo Clinic—Though it is a little off our beaten track, this paper should interest you. Here is part of the next-to-last sentence in it: ". . . aureomycin probably is the most versatile, as well as the most important, antibiotic agent that has been developed since the introduction of penicillin."

HERRELL, W. E. Aureomycin. *Am. J. M. Sc.* 219, 5:570 (May), 1950.

Temperamental Viruses—Some of the tribulations of a pathologist: " the changing antigenic structure of strains of influenza virus . . . appears to progress slowly but steadily. . . . the divergence is sufficient so that the earlier isolated strains elicit few protective antibodies against the newly isolated ones." (With bacteria you knew where you stood, but with the viruses—.)

HILLEMAN, M. R., *et al.* Laboratory Studies on the 1950 Outbreak of Influenza. *Pub. Health Rep.* 65, 24:771 (June 16), 1950.

Without Benefit of Fluorine—During the war years, a sampling of British school children revealed a steady improvement in the percentages of healthy, non-carious teeth. With food rationing relaxed a reversed trend is noted in 1949. The writers do not speculate on the causes: they say we will do it all over again in 1951 to see if the trend continues or turns again toward improvement.

MELLANBY, H., AND MELLANBY, M. Dental Structure and Caries in 5-year-old Children Attending London County Schools. *Brit. M. J.* 4666:1341 (June 10), 1950.

Mind and Matter—In this group, three-quarters of the new mothers who really wanted to nurse their babies could. Only a third of those " on the fence " could. And of those who secretly hoped they couldn't, only a quarter could. Perhaps you had better read the whole paper before tucking this away in your mind as a useful statistic!

NEWTON, N. R., AND NEWTON, M. Relationship of Ability to Breast Feed and Maternal Attitudes Toward Breast Feeding. *Pediatrics* 5, 5:869 (May), 1950.

Work for Many—A dentist tells pediatricians what they can do to shield their youngster patients from dental caries. Recommendations vary from refusal to endorse lollipops and chewing gum and the use of syrupy medications to telling parents what causes tooth decay. The good advice applies to other health workers too.

ROVELSTAD, G. H. The Pediatrician's Responsibility in the Prevention of Dental Caries. *J. Pediat.* 36, 6:687 (June), 1950.

Caution Plus Encouragement—" The purpose of this report (on the Montefiore home-care plan for prolonged illnesses) is in part to dispel the impression that the method is extremely simple in its execution and therefore to question its indiscriminate use . . ." In addition, the paper is a revealing discussion of the need for, and ways to achieve, productive care for chronics.

SHINDELL, S. A Method of Home Care for Prolonged Illness. *Pub. Health Rep.* 65, 20: 651 (May 19), 1950.

This Is About QAC's—At least you should know this much about them:

quaternary ammonium compounds are materials that make water wetter by lowering its surface tension and its interfacial tension. They also kill bacteria, though they may be temperamental about this, and they are helpful in washing dishes and industrial housekeeping.

STEWART, J. M. Quaternaries as Germicides. *Modern San.* 2, 5:14 (May), 1950.

Human Biology—This is something far out of the ordinary. Each new baby is registered early in his prenatal career. His mother's health is watched, and he is followed through infancy, childhood, adolescence, and adulthood. This is a research institute engaged in recording the whole life span of individual persons!

WASHBURN, A. H. Growth. *Pediatrics* 5, 5:765 (May), 1950.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

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BACTERIA, INTRODUCTION TO THE. C. E. Clifton. New York: McGraw-Hill, 1950. 513 pp. Price, $5.00.

BLOOD & COAL. Henry George III. Philadelphia: Dorrance, 1950. 232 pp. Price, $2.50.

CANCER, ORAL AND FACIAL. Bernard G. Sarnat and Isaac Schour. Chicago: Year Book Publisher, 1950. 287 pp. Price, $6.00.

COMMUNICABLE DISEASES. Edited by Roscoe L. Pullen. Philadelphia: Lea & Febiger, 1950. 1035 pp. 235 illus. Price, $20.00.

CURRENTS IN NUTRITION. Bertha Burke, et al. New York: National Vitamin Foundation. 1950. 128 pp. Price, $1.00.

DOCTOR TAKES A FARM, THE. Jeff Minckler. Philadelphia: Dorrance, 1950. 90 pp. Price, $2.50.

EFFECTIVE LIVING. A Course in Health and Safety Education for Senior High Schools. Bulletin 4-B. Tallahassee, Fla.: State Dept. of Education, 1950. 341 pp.

FOUNDATIONS OF COMMUNITY HEALTH EDUCATION. Robert G. Paterson, New York: McGraw-Hill, 1950. 269 pp. Price, $3.75.

GOOD SCHOOL DAY, A. Viola Theman. New York: Teachers College, Columbia University, 1950. 60 pp. Price, $.60.

GRADUATE STUDY IN HEALTH EDUCATION, PHYSICAL EDUCATION AND RECREATION. A Report of the National Conference, Pere Marquette State Park, Ill., Jan., 1950. Chicago, Ill.: Athletic Institute, 1950. 31 pp. Price, $1.00.

GROUND SUBSTANCE OF THE MESENCHYME AND HYALURONIDASE. F. Duran-Reynals, et al. New York: New York Academy of Sciences, 1950. pp. 943–1196. Price, $3.00.

HAVING A BABY (2nd ed.). Alan F. Guttmacher. New York: New American Library, 1950. 182 pp. Price, $.25.

HOME NURSING TEXTBOOK (6th ed.). The American National Red Cross. Philadelphia: Blakiston, 1950. 227 pp. Paper cover, $.60, cloth, $1.00.

LETTERS OF JEAN DE CARRO TO ALEXANDRE MARCET, 1794–1817. Edited by Henry E. Sigerist. Baltimore: Johns Hopkins Press, 1950. 73 pp. Price, $2.00.

MATERNITY CARE IN TWO COUNTIES. Gibson County, Tennessee Pike County, Mississippi. 1940–41, 1943–44. Frank E. Whitacre and Ellen Whiteman Jones. New York: Commonwealth Fund, 1950. 155 pp. Price, $.50.

MEANING OF ANXIETY. Rollo May. New York: Ronald Press, 1950. 356 pp. Price, $4.50.

MEDICAL PARASITOLOGY. William G. Sawitz. Philadelphia: Blakiston, 1950. 296 pp. Price, $4.25.

MERCK MANUAL OF DIAGNOSIS AND THERAPY (8th ed.). Rahway, N. J.: Merck & Co., 1950. 1592 pp. Price, Regular edition $4.50, Thumb-Index edition, $5.00.

MUNICIPAL AND RURAL SANITATION (4th ed.). Victor M. Ehlers and Ernest W. Steel. New York: McGraw-Hill, 1950. 525 pp. Price, $6.50.

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Stern. New York: National Vitamin Foundation, 1950. 128 pp. Price, $1.50.

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SAINTS, SINNERS AND PSYCHIATRY. Camilla M. Anderson. Philadelphia: Lippincott, 1950. 198 pp. Price, $2.95.

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TEACHING BIOLOGY FOR APPRECIATION. Alfred F. Nixon. Boston: Chapman & Grimes, 1950. 143 pp. Price, $3.00.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

CHANGING conditions in Germany are reflected in the reappearance of a varied medical press. The journals reveal the health problems of concern to German physicians and public health workers at present.

TUBERCULOSIS IN CHILDHOOD

One of the most important of these problems is tuberculosis, but the emphasis has shifted somewhat in the past 3 years. In 1948, Kirchmair,[1] discussing childhood tuberculosis pointed out that, except for venereal disease, tuberculosis was considered the most important public health problem in Germany. A most important facet of this problem was childhood tuberculosis. As indicative of the prevalence, Kirchmair cited figures for five Bavarian districts where one-third of all active closed cases of tuberculosis are in children. The importance of early diagnosis and the use of the tuberculin test are emphasized. After stressing the need for adequate housing, good nutrition, and sufficient hospital beds, the author concludes with the hope that BCG vaccination will also be employed soon.

TUBERCULOSIS STATUS OF CHILDREN IN THE POST-WAR PERIOD

The immunologic status of German children with respect to tuberculosis is

the subject of a study by Küster and Kamp.[2] In view of the alarming situation shortly after the war, it was a matter of astonishment to find that the number of tuberculin-positives among school children had not increased markedly when compared with pre-war figures. They compared the period 1939–1940 with that for 1945–1947. It was found that the percentage of tuberculin-positives did not increase for children in the age groups 1–10. For the age groups 11–14, however, there is a statistically significant difference of 5.9 per cent increase in the post-war group. The authors believe that such increase in childhood tuberculosis as has occurred is due to primary infections that have become manifest cases of disease.

STATISTICS OF TUBERCULOSIS

Freudenberg[3] analyzes tuberculosis statistics, with particular reference to the state of Hessen. In 1938, the tuberculosis mortality was 5.0 per 10,000, while in 1947 it was 6.9. The majority of these deaths occurred in males between 20 and 60 years of age, especially among younger males between 20 and 30. Almost no change occurred in the mortality of children, old men, and females of all ages. The Bavarian statistics are reported to show similar relations, although the rise in mortality was not as great. The increased mortality among males is explained by the effects of the war. First, at the census of 1946, one-third of all men between the ages of 20 and 30 in the Hessian population were not present. The same was true of the 30 to 40 age group. In addition, however, it is assumed that the hardships of war exerted an unfavorable effect on these groups. Freudenberg points out that as time goes on the effect of such factors will lessen. In support of this position he adduces the improvement in the tuberculosis situation during the past 3 years.

PROBLEMS OF BCG VACCINATION

The tuberculosis situation in Germany in the immediate post-war period led to the adoption of BCG vaccination. Wunderwald discusses the nature of the Calmette-Guerin vaccine and the problems involved in its use.[4] According to this author, hundreds of thousands of children in Germany have now been inoculated with BCG, which he regards as one of the most promising means for the prevention of tuberculosis.

ARTIFICIAL FERTILIZERS AND HUMAN HEALTH

The fact that Germany lost about 25 per cent of its agricultural area, while its total population has remained about the same, makes it necessary to cultivate this smaller area more intensively. In order to increase the productivity of the soil, the increased use of artificial fertilizer is proposed. Gericke points out that objections have been raised to this practice, on the ground that such fertilizers are injurious to health.[5] To see whether there is any basis for such objections, he undertook to investigate statistically any possible relationship between the use of fertilizers, infant mortality, and the frequency of cancer deaths in 16 European countries. No relations between these factors were established. Gericke concludes, therefore, that plans to increase the use of artificial fertilizers should be furthered as much as possible. In fact the increased production of food will aid immeasurably in improving health.

FLY CONTROL IN THE PREVENTION OF DISEASE

In an effort to control the spread of enteric disease, fly control campaigns have been undertaken in various parts of Germany. Hormann describes the campaign in Hamburg as it was carried out from July 1 to September 30, 1947. DDT sprays were employed. Special attention was given to hospitals, abat-

toirs, garbage cans and wagons, toilets and latrines at railroad stations and other places where large numbers of people gather such as emergency housing settlements, and food storage facilities. In addition the population was informed about the purpose of the project, and the insecticide together with instructions for use was distributed to be employed in dwellings. Owing to lack of staff, emphasis was placed on an educational campaign. Leaflets, posters, press releases, and slides projected in motion picture theatres were employed to enlist the coöperation of the public. The fly population was successfully reduced. The authors point out, however, that the direct effect of such a campaign on the incidence of enteric disease cannot be judged, as many other factors are involved.

CONTACT INSECTICIDES

In this monograph dealing with contact insecticides on a halogen-hydrocarbon basis, Riemschneider reports on the chemical, physical and toxicological properties of substances of the DDT and HCH groups.[7] This discussion is based on the literature as well as on previously unpublished work by the author. Coverage of the literature is extensive; the bibliography includes almost 400 items. Nomenclature and classification of the insecticides are discussed. The author differentiates between systematic chemical, general chemical, abbreviated and trade names. All the HCH isomers are discussed and suitable new methods of preparation are indicated. Riemschneider specifically calls attention to the toxicity of Gammexane for warm-blooded animals. This monograph is a very useful, critical presentation.

SANITARY CONTROL OF ICE CREAM PRODUCTION AND DISTRIBUTION

Knothe and Buschauer[8] point out that ice cream is a very sensitive food which when improperly prepared or dispensed can easily become a source of danger to public health by spreading enteric disease. Before the war the consumption of ice cream had increased annually and this trend has been intensified since the war. Particularly in the summer of 1949, numerous persons without occupation attempted to earn a living by making and selling ice cream. Samples taken showed a high bacterial count, especially of coli organisms. To deal with this situation the authors propose that the public at large be informed about the problem, and that specific educational measures be undertaken with the producers and sellers of ice cream. Furthermore, legislative measures are proposed, and attention is called to a proposed legislative enactment in Hessen to deal with the same problem. Interesting is the specific statement that the use of duck eggs in the manufacture of ice cream should be prohibited.

A TYPHOID EPIDEMIC IN LÜBECK IN 1948

In May, 1948, there was an explosive outbreak of typhoid fever in Lübeck in which 323 persons were attacked.[9] While it was not possible to establish bacteriologically the source of the epidemic, there was strong presumptive evidence that the point of origin was a dairy which supplied certain sections of the city. Kärst took the occasion of this epidemic to see whether there was any scientific evidence for the concept of a *genius epidemicus*, that is, the idea that each epidemic has its special character. To do this, the epidemic of 1948 was compared with that of 1947 as to course and symptomatology. No bacteriological differences (e.g. Vi agglutinins) were found, and the same was true of the clinical aspects (mortality, severity of the illness, symptoms). In view of these findings and the fact that both epidemics were of different origin, Kärst concludes that there are no objective bases for the concept of a *genius*

epidemicus. Such variability as may occur, he attributes to individual constitutional differences.

CHRONIC TYPHOID CARRIERS IN BERLIN

In 1945 Berlin had a large typhoid fever epidemic. After the epidemic had come to an end, a campaign was undertaken to locate and register all typhoid carriers in Berlin.[10] By July 1, 1947, 253 carriers were known. A central registry was set up. As of March 1, 1948, there were 228 typhoid carriers and 54 paratyphoid carriers known to the registry. Most of these were women over 40 years of age. The carriers were subjected to the following treatment: (a) enterovioform, sometimes combined with urotropin, (b) intravenous typhoid vaccine in increasing dosage, (c) sulfonamides, in particular, sulfaguanidine. None of these methods was successful. Eventually recourse was had to the medicament "Enterofagos," a polyvalent mixture of bacteriophage. Eighteen women were treated, of whom one was operated upon and the gall bladder removed, one was released, and a third ran away. Of the remaining 15, after 8 weeks of treatment 3 were cured. Twelve remained carriers. The author concludes that chronic carriers need not be isolated if they do not seek employment where they come into contact with food and related matters, if they are informed about their condition and if they learn to take the necessary precautions. He notes that this is the basis of American practice in this area, and that the Berlin experience coincides with it.

EPIDEMIOLOGICAL CONSIDERATION OF AN EXPLOSIVE PARATYPHOID EPIDEMIC

An interesting report of an explosive paratyphoid outbreak in a kindergarten is presented by Noack[11] and Raettig.[12] Despite the fact that the origin could not be established in the course of a very detailed investigation, several very interesting possibilities as to the genesis of the epidemic are considered. The most probable explanation is considered to be the following: The children and the attendant personnel ingested food contaminated with paratyphoid organisms. These originated either from the mother of one of the children, or from one of the attendants, or from a portable bathtub which was used to transport the food. It is believed that the population of this kindergarten, already infected with paratyphoid organisms, then received food containing zinc salts, so that the original infection was aggravated by zinc poisoning.

TUBERCULOSIS CASE FINDING IN INDUSTRY

Lohse[13] reports on the experience of the Bohlen Works Clinic in tuberculosis case finding since its establishment on January 1, 1948. Since then, 13,259 fluoroscopic examinations have been carried out. Primary attention was given to young workers and apprentices. As facilities for serial x-ray work were not available, and it was technically impossible to fluoroscope all the employees, resort was had to other measures. A memorandum was sent to the works management requesting that all workers who within the preceding 6 months had had a grippe, pneumonia or pleurisy, or who complained of cough, night sweats or general fatigue be sent to the clinic for examination. As a result 3 cases of open tuberculosis and 26 other active cases were found. After the discovery of a case of tuberculosis, the patient's co-workers are all called in for examination. In view of the technical limitations of the present situation, Lohse believes that these measures will discover as many cases as can be expected at present.

DEAFNESS AMONG WORKERS TESTING MOTORS—A NEW OCCUPATIONAL DISEASE

Schmalix[14] discusses the hearing de-

ficiency extending to deafness which occurs in workers who test motors, particularly plane engines. He considers this a new occupational disease, although it is related to the deafness which occurs in other workers such as locomotive engineers and weavers. It is believed that certain constitutional types (asthenics) are more susceptible to this condition. Since a large number of workers employed in testing motors will suffer hearing damage it is proposed that this occupational condition be recognized as suitable for compensation.

SILICOSIS THROUGH THE USE OF PUMICE-STONE FOR POLISHING

Sommer [15] reports on an investigation of a factory where artificial pumice-stone (SiO_2 content of about 80 per cent) was used for polishing. Only women were employed. The working conditions were very poor. Twenty-two women were examined and 63 per cent were found to have silicosis. In 50 per cent of the cases the disease was in an advanced form. Striking was the absence of complication with tuberculosis. This situation occurred in only one case. In no case did the time of work-exposure exceed 9 years.

OCCURRENCE OF AUTOCHTHONOUS MALARIA IN GERMANY

The occurrence of autochthonous malaria in the province of Brandenberg had already been reported by Klose and Eisentraut during the war (1939–1944). Since 1945–1946 an increasing number of such cases of malaria has become known from other areas of Germany. Now Sommer [16] reports such cases for the city of Cologne and the rural area surrounding it. For 1945–1946 and 10 months of 1947, there were 67 cases that could be considered as falling into this category.

POPULATION PROBLEMS

A problem of considerable concern in Germany today is that of population. Gramm [17] discusses this question in connection with the policy in the eastern zone of Germany to permit abortions for social reasons. He points out that the population has decreased and will probably continue to decrease. Every effort should therefore be made to protect, not to prevent pregnancy. This requires positive measures in terms of social policy. In 1948 there were over 500 interruptions of pregnancy on social grounds, and it is estimated that in addition there are about 4,500 abortions a year. Gramm proposes therefore that in each case where such permission is given, positive action be taken to prevent any need for future legal abortions.

Accepting the need for control of pregnancy, Ruge [18] insists that prevention of conception is more important than interruption of pregnancy. He therefore calls attention to an occlusive pessary which allegedly has no disadvantages and is cheap. It is proposed that the social insurance funds provide these when indicated.

PROBLEMS OF PUBLIC HEALTH ADMINISTRATION

Marcusson [19] discusses some of the more important problems of public health administration that are of concern to German health officers. There is the question of personnel recruitment and training for the field of public health. In western Germany it has been proposed that specialists for hygiene and bacteriology be recognized. This recognition would be granted after a five year training period, consisting of a year of general medical experience, and four years of training in hygiene, bacteriology and serology, two of which must have been spent at a school of public health or related institution. Marcusson suggests that such specialization might be started in the last undergraduate year of medical school. He stresses that persons trained in public

health should be trained not only in biological science, but also in social science.

Another problem of considerable interest is the provision of medical care facilities, particularly so-called "policlinics," that is, dispensaries or outpatient departments. Marcusson presents the situation in eastern Germany, pointing out that such establishments were first set up wherever space was available, but that it is now necessary to review the situation in a planned way.

The development of satisfactory mortality and morbidity statistics is another problem discussed in this paper. Marcusson calls attention to the new *International List of Diseases and Causes of Death.*

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18. Ruge, Ernst. Okklusivpessare. *Das Deutsche Gesundheitswesen* 5:246–248, 1950.
19. Marcusson, E. Tagesprobleme des amtsärztlichen Dienstes. *Das Deutsche Gesundheitswesen* 5:437–440, 1950.

Motion Picture Film Review

So Much for so Little—Color, sound, 16 mm. 12 minutes. Warner Brothers Studios for U. S. Public Health Service, Bureau of State Services, Washington 25, D. C.

After extended theatrical commercial showing this film is now available on indefinite loan in 16 mm. to state health departments. It is an enchanting Disneyesque animation with all that means in lovable characters, droll situations, imaginative story development, ingenious devices, good color and sound track.

Designed to create interest in local health units, the story and its treatment tend to run away with the purpose. An "adorable" infant grows to old age, meeting the usual health hazards. With a practical eye on theatrical acceptance these hazards are presented so charmingly, however, that their preventability and serious implication for community health may be overlooked by an audience eager for entertainment. Hero Health Officer operating from a modernistic Health Center and dimly supported by Nurse and Sanitarian (no Health Educator, no Statistician), knocks off danger with traditional cartoonistic gusto. Sugar-coated mention of modern health department service with some adult health instruction is tossed in for good measure.

This picture will provide a delightful interlude for P.T.A. meetings and for other groups where it is sure to create benign and sympathetic approval for good health (and cunning babies). It is excellent entertainment with some gentle health education, well worth showing in connection with community programs designed to improve local health services. By itself it would not be likely to pry loose from a budget and election-minded board of county supervisors the three cents per week per capita appropriation it suggests.

HOMER N. CALVER

RECENT MOTION PICTURE RELEASES

(All 16 mm., black and white, with sound, unless indicated otherwise)

Act Your Age—Emotional immaturity at the adolescent stage. 15 min. Available in color and black and white. Coronet Films, 65 E. South St., Chicago 1, Ill.

Alcohol and the Human Body—Deals with the physiological effects of drinking. 14 min. Encyclopaedia Britannica Films, Wilmette, Ill.

Applying DDT—Home and farm methods for insect control in a community program. 12 min. Michigan Dept. of Health, Lansing 4, Mich.

Are You Ready for Marriage?—Contains a "checklist for Cupid" as a guide in marriage counselling. 15 min. Coronet Films, 65 E. South St., Chicago 1, Ill.

Baby Sitter (The)—Points out responsibilities of sitter and parents. 15 min. Young America Films, 18 E. 41 St., New York 17, N. Y.

Breast Cancer—The Problem of Early Diagnosis—Produced for the medical profession to show techniques for tumor detection. 35 min. American Cancer Society, 47 Beaver St., New York 4, N. Y.

Care of the Skin—Explains protective action of the skin and ordinary methods for cleansing it. For juvenile audiences. 11 min. Encyclopaedia Britannica Films, Wilmette, Ill.

Collection of Adult Flies—How to use sweep net, fly trap, and cone net in a community fly control project. 6 min. Has color. Communicable Disease Center of U.S.P.H.S., Atlanta 3, Ga.

Common Cold (The)—Possible aftermaths

explained for juvenile audiences. 11 min. Encyclopaedia Britannica Films, Wilmette, Ill.

Dental Health—How and Why—Deals with research that has influenced modern methods of dental care. For young audiences. 10 min. Coronet Films, 65 E. South St., Chicago 1, Ill.

Doorway to Death—The individual's responsibility for home safety. In color. 15 min. Aetna Life Insurance Co., Hartford, Conn.

Ears and Hearing (The)—Shows mechanics of sound wave transmission to the ear and brain. 13 min. Encyclopaedia Britannica Films, Wilmette, Ill.

Fly Density Surveys by the Grill Method—How to construct and use a fly grill. In color. 6 min. Communicable Disease Center of U.S.P.H.S., Atlanta 3, Ga.

For Us the Living—How government and industry coöperate to produce safe proprietary medicines. In color. 20 min. Institute of Visual Training, 40 E. 49 St., New York 17, N. Y.

From One Cell—Processes of human cell growth explained as a means of interesting biology students in cancer research. In color. 13 min. American Cancer Society, 47 Beaver St., New York 4, N. Y.

Guardians of Our Country's Health—The quarantine service of the U.S.P.H.S. as it relates to incoming ships, planes, and immigrants. In color. 16 min. Frith Films, Hollywood 28, Calif.

Kitty Cleans Up—Good Health habits for children, with emphasis on cleanliness. 10 min. Young America Films, 18 E. 41 St., New York 17, N. Y.

Marriage for Moderns—A series of five films built around Dr. Henry Bowman's textbook of the same title. All deal with modern marriage problems. Titles in the series are "This Charming Couple," "Marriage Today," "Choosing for Happiness," "It Takes All Kinds," and "Who's Boss?" Lengths 17–22 min. McGraw-Hill Book Co., 330 W. 42 St., New York 18, N. Y.

Save Those Teeth—A dentist gives the why and how of dental care. 11 min. Encyclopaedia Britannica Films, Wilmette, Ill.

Something to Cheer about—Oral hygiene. Sponsored by a dentifrice manufacturer but not burdened with advertising for the product. In color and also black and white. 15 min. Institute of Visual Training, 40 E. 49 St., New York 17, N. Y.

Taken for Granted—Sewage removal in Middlesex, England. 19 min. British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.

Unconscious Motivation—Demonstrates use of hypnosis in uncovering repressions. 40 min. Association Films, 35 West 45 St., New York 20, N. Y.

You and Your Parents—Family relationships, particularly between adolescents and their parents. In color and also black and white. 15 min. Coronet Films, 65 E. South Water St., Chicago 1, Ill.

You Can Hear Again—Shows services and training given to veterans who are hard of hearing. 25 min. Veterans Administration, Washington, D. C.

Your Child's First Visit to the Dentist—Suggestions for preparing a child's mind for professional care. 10 min. American Dental Association, 222 E. Superior St., Chicago.

ASSOCIATION NEWS

Seventy-eighth Annual Meeting
American Public Health Association
St. Louis, Mo., October 30–November 3, 1950

Committee on Professional Education

— Projects and Plans —

On May 19, the Committee on Professional Education met in New York City under its new Chairman, Dr. Leroy E. Burney, of Indiana, who succeeds Dr. William P. Shepard, President-elect. Other new members of the committee present at the meeting were Edmund K. Kline, Dr.P.H., and Dean F. Smillie, M.D.

The committee adopted a statement of appreciation to Dr. Shepard and expressed its confidence in Dr. Burney's leadership.

Recommendations for the accreditation of 11 institutions (including for the first time the University of Pittsburgh Graduate School of Public Health) were adopted for transmission to the Executive Board (see *A.J.P.H.* July, 1950).

The committee also voted to adopt the following policy steps with regard to accreditation procedures:

1. That no accreditation for institutions granting graduate degrees in public health be given until a major part of the necessary faculty is on the ground, the program of instruction well worked out, and the budget assured.
2. That recommendations for accreditation be adopted and transmitted to the Executive Board only at meetings of the committee held not less than four months after formal written application from the university is received; but that if all conditions for accrediting have been fulfilled and students are coming up for degrees in the spring, the committee, at its discretion, may accredit for the current year.

There was a considerable amount of critical discussion on the definition of institutions within which schools of public health should function; on the need for new schools; and on the likelihood that new schools will be established in the near future in certain parts of the country.

There were reports on the American Board of Preventive Medicine and Public Health, Inc., which has been functioning for over one year; on the newly formed Board of Nutrition; and on the Board of Public Health Dentistry which is in the process of formation.

A large part of the meeting was given over to discussions of the objectives and methods for the new project on accreditation of field training and residency experience which is being carried out with the financial assistance of the W. K. Kellogg Foundation. The plans for the evaluation of the quality residency experience for physicians are being laid in close coöperation with the Council on Medical Education and Hospitals of the American Medical Association and the American Board of Preventive Medicine and Public Health. Accreditation of field training of other professional groups will be undertaken through coöperative planning with these groups.

The committee was informed that the A.P.H.A. is offering to state health offi-

cers contracts for projects on recruitment services, Merit System services and evaluation services but it was too early to predict the progress in this direction.

The next meeting of the committee will be held during the Annual Meeting of the A.P.H.A. in St. Louis on Oct. 30.

A.P.H.A. AFFILIATED SOCIETIES

New Mexico—The following officers were elected at the 22nd Annual Meeting of the New Mexico Public Health Association held in Raton, May 16–19:

President—Myrtle Greenfield, Director, State Dept. of Public Health Laboratories
President-Elect—William P. Cortez
Vice-President—Hazel H. Losseff, Supervising Nurse, Health Dist. 5
Representative to Western Branch, A.P.H.A.—Marion Hotopp, M.D., Director, Division of Maternal and Child Health, State Dept. of Public Health
Representative to U.S.-Mexico Border Public Health Assn.—H. D. Newman, M.D., District Health Officer, State Dept. of Public Health

Additional officers, elected for three year terms in 1949, are as follows:

Librarian—Helen M. Boss
Secretary-Treasurer—Mary M. Gilliland, Administrative Assistant, State Dept. of Public Health
Representative to A.P.H.A. Governing Council—Billy Tober, Supervisor of Finance and State Registrar, State Dept. of Public Health

Participating in the four day meeting were several out-of-state speakers, namely Lynn J. Lull, M.D., and James P. Ward, M.D., Ariz.; E. Carl Warkentin, Ark.; Karl F. Meyer, M.D., Calif.; Carlos Graef Fernandez, M.D., and Pedro Daniel Martinez, M.D., Mexico; Roy L. Cleere, M.D., and Martin D. Baum, D.V.M., Colo.; Anna Heisler, Washington, D. C.; Maurice A. Roe, M.D., Tex.; and Grady F. Mathews, M.D., Okla.

Connecticut—New officers of the Connecticut Public Health Association, elected for two year terms at this society's annual meeting held in New Haven on May 17, are as follows:

President—Sterling P. Taylor, M.D., Health Officer of North Haven
President-Elect—Friend Lee Mickle, Sc.D., Director, Bureau of Laboratories, State Dept. of Health
Vice-President—Leonard Parente, M.D., Health Officer of Hamden
Secretary-Treasurer—Muriel F. Bliss, Ph.D., Executive Secretary, Hartford Tuberculosis and Public Health Society

Alfred L. Burgdorf, M.D., Health Officer of Hartford, has been named to represent the Connecticut society on the A.P.H.A. Governing Council.

Tennessee—The following officers were elected at the 1950 Annual Meeting of the Tennessee Public Health Association in Nashville, May 1–3.

President—Robert H. Hutcheson, M.D., Commissioner, State Dept. of Health
President-Elect—Paul M. Golley, M.D., Director, Chattanooga-Hamilton County Health Dept.
Vice-President—Frank A. Moore, M.D., Director, West Tennessee Regional Office, State Dept. of Health
Secretary-Treasurer—Monroe F. Brown, M.D., Director of Local Health Service, State Dept. of Health

The new representative to the Governing Council of the American Public Health Association is Lloyd M. Graves, M.D., Director, Memphis and Shelby County Health Dept.

Illinois—The Tenth Annual Conference of the Illinois Public Health Association took place on April 20 and 21 in Springfield. The meeting opened with a Health Education Conference, two general sessions were held, the Sanitary Engineering, Laboratory, and Health Officers Sections each sponsored a session, and another session was held jointly by nurses, educators, and nutritionists.

The following officers were elected to serve for the following year:

President—Winston H. Tucker, M.D., Commissioner of Health, Evanston
President-Elect—William J. Downer, Assistant Chief Sanitary Engineer, State Dept. of Public Health
Secretary-Treasurer—Ben D. Kiningham, Jr., Executive Secretary, Illinois Tuberculosis Assn.

Iowa—The Iowa Public Health Association held its 23rd Annual Meeting in Des Moines on the afternoon of May 3. During the following two days it served as host to and participated in the sessions of the first meeting of the Middle States Public Health Conference. The following officers will serve the Iowa society for the coming year:

President—Sophie Fevold, Director, Des Moines Public Health Nursing Assn.
President-Elect—Paul Bolton, Engineer, State Dept. of Health
Vice-President—N. E. Barnes, M.D., Head, Dept. of Hygiene and Preventive Medicine, State University of Iowa
Secretary-Treasurer—Loren E. Chancellor, Director, Division of Vital Statistics, State Dept. of Health

New York City—The Annual Meeting of the Public Health Association of New York City was held on June 12. The following officers were elected:

President—Harry S. Mustard, M.D., Executive Director, State Charities Aid Assn.
First Vice-President—Earle G. Brown, M.D., Nassau County Commissioner of Health
Second Vice-President—Helen Crosby, Director, Bureau of Social and Health Agencies, Metropolitan Life Insurance Co.
Secretary-Treasurer—Charles A. Freck, Executive Director, Queensboro Tuberculosis and Health Assn.

The principal address was given by Dr. Leonard W. Mayo, Director, Association for the Aid of Crippled Children, who spoke on the topic "A Common Ground for Common Objectives in Public Health."

Ohio—The Ohio Public Health Association held its 1950 Annual Meeting on May 11 and 12 in Columbus and registered 505 delegates during the two day meeting. The O.P.H.A. now has eight Sections, the Nutritionists, Laboratory Technicians, and Veterinary Preventive Medicine and Public Health Sections having been organized recently. New officers for the coming year are as follows:

President—Carl A. Wilzbach, M.D., Health Commissioner of Cincinnati
President-Elect—Vera Glover, Cleveland
Secretary-Treasurer—W. R. Haines, District Sanitarian, State Dept. of Health
Delegate to A.P.H.A. Governing Council—Harry Wain, M.D., Health Commissioner, Mansfield-Richland County Health Dept.
Alternate Delegate to A.P.H.A. Governing Council—Anna Doyle, Supervisor of Public Health Nurses, Public Health League Nursing Assn.

Georgia—The Georgia Public Health Association held its 21st Annual Meeting in Savannah on May 1, 2 and 3 and at that time elected the following officers:

President—C. D. Bowdoin, M.D., Director, Division of Venereal Disease Control, State Dept. of Public Health
President-Elect—Bessie F. Swan, Associate Director of Public Health Nursing, State Dept. of Public Health
Past-President—James A. Thrash, M.D., Commissioner of Health, Muscogee City-County Health Dept.
Vice-President—John Venable, M.D., Commissioner of Health, Spalding-Lamar-Pike Dist. Health Dept.
Secretary—C. S. Buchanan, Preventable Disease Control Executive, State Dept. of Public Health
Treasurer—Ernest B. Davis, Atlanta
Representative to Southern Branch, A.P.H.A.—Roy J. Boston, Sanitary Engineer, Division of Preventable Diseases, State Dept. of Public Health
Representative to A.P.H.A. Governing Council—James A. Thrash, M.D.

There was generous participation by both Georgia health workers and out-of-state speakers in the three general ses-

sions and the meetings of the Medical Officers, Public Health Nursing, Sanitation, Health Education, Laboratory, and Communicable Disease Investigators Sections.

South Carolina — Approximately 600 persons attended the 27th Annual Meeting of the South Carolina Public Health Association at Myrtle Beach, May 22–24. During the three day program three general sessions were held, as well as sessions of the Health Officers, Sanitation, Nursing, Clerical, and Health Education Sections. The new officers are:

President—John R. Claussen, M.D., Director, Florence County Health Dept.
President-Elect—George A. Bunch, D.D.S., Director, Division of Dental Health, State Board of Health
Vice-President—Eugenia R. Cooper, Supervising Nurse, Orangeburg and Calhoun County Health Dept.
Secretary—Carrie B. DuPriest, Principal Clerk, Tuberculosis Control Division, State Board of Health
Treasurer—Sara F. Rogers, Crippled Children's Division, State Board of Health

Ben F. Wyman, M.D., South Carolina State Health Officer, was again elected to represent this society on the Governing Council of the American Public Health Association.

Colorado—At the 1950 Annual Meeting of the Colorado Public Health Association held in Colorado Springs, May 25–27, the Sabin Award " for outstanding contributions to the furtherance of the cause of public health in Colorado " was presented to Mark Harrington, President of the Colorado Health Council. Another event of the meeting was the creation of a Sanitation Section as the first section of the Colorado society. The new officers follow:

President—Norma Johannis, Director, Health Education Section, State Dept. of Public Health
Vice-President—Ward L. Chadwick, M.D., Director, Communicable Disease Control Division, Denver Bureau of Health and Hospitals
Secretary—Ruth J. Raattama, M.D., Director, Maternal and Child Health Division, Denver Bureau of Health and Hospitals
Treasurer — Agnes McKenna, Supervising Nurse, Alfred Freudenthal Health Center

The C.P.H.A., through its President, Norma Johannis, and the health educators, gave its members a chance to say what they liked or disliked about the annual meeting by means of questionnaires. They also asked about members' desires for future meetings. The results are available for future program planning. While there was general satisfaction with the meetings, many wished the opportunity to participate more, asked for more visual aids, and were concerned with the physical arrangements.

Massachusetts—The following officers of the Massachusetts Public Health Association were elected on June 15 during the Fourth Annual Meeting of the Massachusetts Public Health Conference and New England Health Institute:

President — Leon A. Bradley, Ph.D., Head, Dept. of Bacteriology and Public Health, University of Massachusetts
President-Elect—Clarence L. Scamman, M.D., Medical Director, Massachusetts Division, American Cancer Society
Vice-President—John E. Gordon, M.D., Professor of Preventive Medicine and Epidemiology, Harvard School of Public Health
Secretary—Helen H. Gillette, Chief of Bacteriology Laboratory, State Dept. of Public Health
Treasurer—Brooks Ryder, M.D., Administrator, Bingham Associates Program, New England Center Hospital

Raymond S. Patterson, Ph.D., Director of Health Education, John Hancock Mutual Life Insurance Company, continues as the M.P.H.A.'s representative on the Governing Council of the American Public Health Association.

THE 78TH ANNUAL MEETING

St. Louis, Mo., Oct. 30–Nov. 3, 1950

Hotel Reservation Form

The hotels listed below have rooms available for Association delegates at the rates indicated. Please note that no RESERVATIONS WILL BE ACCEPTED DIRECTLY BY HOTELS. Make your reservations through: *HOTELS CONVENTION RESERVATION BUREAU, A.P.H.A., Room 406, 911 Locust St., St. Louis 1, Mo.*

Hotel	*Single Rooms*	*Double Rooms*		*2 Room Suites*
		Double Bed	*Twin Beds*	*Parlor & Bedroom*
American	$2.75–$4.00	$3.50–$5.00	$4.00–$5.00	$8.00
Baltimore	2.75– 3.50	3.75– 4.50	4.00– 5.00	
Broadview	3.00– 6.00	4.50– 7.00	6.00– 8.00	12.00–18.00
Chase	4.00– 8.00	6.00– 8.00	6.00–10.00	10.00–35.00
Claridge	3.25– 4.75	5.00– 7.50	5.50– 7.50	12.00 & up
Congress	4.50– 6.00	6.50– 8.00	6.50– 8.00	12.00–15.00
De Soto	3.50– 5.00	5.50– 8.00	7.00–13.00	12.00–20.00
Forest Park	3.50– 5.00	5.00– 7.00	6.50 & up	10.00 & up
Gatesworth	4.00 & up	5.00 & up	5.00 & up	10.00 & up
Jefferson	4.50– 6.50	6.00– 8.00	7.50– 8.50	12.00–22.50
Kingsway	3.00– 4.00	4.50– 7.00	6.50– 7.00	
Lennox	3.75– 6.00	5.25– 8.00	6.50– 8.00	11.00 & up
Majestic	3.00– 5.00	4.00– 6.00	6.00– 8.00	
Mark Twain	3.25– 5.00	5.00– 7.00	6.50– 7.00	
Mayfair	3.50– 8.50	7.00–10.00	8.00–10.00	12.00–20.00
Melbourne	4.00– 6.00	5.00– 7.50	6.50– 8.00	12.00 & up
Park Plaza	5.00– 9.00	6.00–10.00	7.35–11.00	9.00–30.00
Roosevelt	3.50– 5.00	5.25– 8.50	7.50–12.00	16.50–19.50
Sheraton	4.00– 6.00	3.80– 5.00	6.00	
Statler	3.75– 6.50	4.50– 5.00	5.50– 7.00	
Warwick	2.75– 3.25	5.00– 9.50	7.00 & up	14.00 & up
York	3.00– 4.00	6.00– 8.00	7.00– 9.00	12.00–17.00

Single Rooms are limited; share a twin bedded room with a fellow delegate. Be sure to use the form below giving the Hotels Convention Reservation Bureau the complete information asked for. This will eliminate unnecessary correspondence for you and the Bureau. All reservations will be acknowledged by the Bureau; and confirmed by the Hotel to which you have been assigned by September 1.

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO: September 18, 1950

Hotels Convention Reservation Bureau, A.P.H.A.
Room 406 — 911 Locust St.,
St. Louis 1, Mo.

Please make hotel reservation as indicated below:

First Choice ..... **Second Choice** ..... **Third Choice** .....
(Be sure to give three choices of hotels)
Single Room ..... **Double Bedroom** ..... **Twin Bedded Room** .....
2 Room Suite ..... **Other Type Room** .....
Rate from: $..... **to $**.....
The name(s) of the occupant(s) of the room will be: .....
.....
.....
Arrival at Hotel ..... **hour** ..... **A.M.** ..... **P.M.** .....
(date)
Departure ..... **hour** ..... **A.M.** ..... **P.M.** .....
(date)

PLEASE NOTE: **Hotel accommodations will be held until 6:00 p.m.; later if deposit is made with notification.**

Name .....
(Individual Requesting Reservation(s))
Address .....
City and State .....

If the hotels of your choice are unable to accept your reservation the Hotels Convention Reservation Bureau will make as good a reservation as possible elsewhere providing that all hotel rooms available have not already been taken.

ADVANCE REGISTRATION

FOR 78TH ANNUAL MEETING

AMERICAN PUBLIC HEALTH ASSOCIATION

ST. LOUIS, MO., OCTOBER 30–NOVEMBER 3, 1950

Members and Fellows of the American Public Health Association and other health workers who are not members who wish to register in advance for the St. Louis Annual Meeting are cordially invited to do so.

Each person should fill in the coupon below or a facsimile thereof and mail it with the registration fee to the Central Office. We will prepare for your attendance in advance and you can then pick up your program and badge without delay at a special section as soon as you arrive at Registration Headquarters in the Kiel Auditorium. At that time your registration will have been recorded and it will only be necessary for you to supply your local hotel and room number to complete the registration procedure. If you know now at which hotel in St. Louis you will be staying, please add this information below.

Return to
American Public Health Assn.,
1790 Broadway
New York 19, N. Y.

Advance registrations cannot be accepted and recorded if received in Central Office after October 1, 1950

I wish to register in advance for the St. Louis Annual Meeting.

NAME .....

BUSINESS ADDRESS .....

CITY & STATE .....

TITLE OF POSITION .....

HOTEL IN ST. LOUIS .....

Non-member of A.P.H.A. Registration fee $4. ☐

Member of A.P.H.A. Registration fee $3. ☐

Fellow of A.P.H.A. Registration fee $3. ☐

Please send check or money order for amount shown

If you will be accompanied by your wife (or husband) or other dependent member of your family who is entitled to free registration, please list the name and address below:

NAME ..... RELATIONSHIP TO DELEGATE .....

STREET ADDRESS ..... CITY & STATE .....

TESTIMONY ON REORGANIZATION PLAN NO. 27 OF 1950 PRESENTED JUNE 19, 1950, BEFORE THE HOUSE OF REPRESENTATIVES COMMITTEE ON EXPENDITURES IN THE EXECUTIVE DEPARTMENTS, BY HUGH R. LEAVELL, M.D., PROFESSOR OF PUBLIC HEALTH PRACTICE, HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MASS., AND CHAIRMAN OF THE EXECUTIVE BOARD, AMERICAN PUBLIC HEALTH ASSOCIATION, NEW YORK, N. Y.

The American Public Health Association wishes to place on record its considered opinion with reference to Reorganization Plan No. 27, which would create a Department of Health, Education, and Security from the present structure of the Federal Security Agency.

As a professional society of more than 12,000 public health workers, including physicians, dentists, nurses, engineers, and other professional groups in the health field, the American Public Health Association believes it is essential that the Federal Security Agency be given Departmental status. We consider this step indicated in view of the broad scope and character of the Agency in terms of financial involvement, the numbers of persons concerned, and the importance of the functions of health, education, and security in our nation's development.

It seems appropriate to us that the agency dealing with health, education, and security at the federal level should be thoroughly coördinated at the top because corresponding agencies at the local and state level are so generally separate and distinct. A first rate example of coördination in the proposed federal department would be useful.

This Association in commenting on Reorganization Plan No. 1, said:

"We would prefer that this Cabinet Department be designated as the Department of Health, Education, and Security, since it would comprise functions not ordinarily included under the term 'Welfare.'"

The Association is very pleased to note, therefore, that Reorganization Plan No. 27 recommends the creation of a Cabinet Department of Health, Education, and Security.

The Association has also indicated that it believes that the functional operating divisions of other units of the Department should be headed by career officers of high professional and administrative competence in their particular fields. These latter positions should be non-political in character. We are therefore very much in accord with the sections of Reorganization Plan No. 27 which provide that the Surgeon General, the Commissioner of Education, and the Commissioner of Social Security shall report directly to the Secretary of the Department, and shall each have professional qualifications, experience, and training appropriate to the duties of his office.

We also approve the provision which allows for central administrative services in the interest of economy and efficiency, but at the same time prevents transfer or removal of professional or substantive functions from the control of the Surgeon General, the Commissioner of Education or the Commissioner of Social Security.

Reorganization Plan No. 27, is, of course, not entirely in accord with the Hoover Commission's plan for

"a United Medical Administration into which would be consolidated most of the large-scale activities of the Federal Government in the fields of medical care, medical research, and public health (in which we include preventive medicine)." *

It is important to point out, however, that the recommendation of the Hoover Commission for a United Medical Administration as an agency separate from the federal agency responsible for education and security was made only in the face of minority reports from members of the Commission itself. It may be helpful to quote from an article by this witness who served as a member of the Commission's Committee on Medical Services, published in the *New England Journal of Medicine*, October 6, 1949, which gives some of the background of the question and states arguments pro and con:

INDEPENDENT HEALTH AGENCY

"The Committee on Medical Services at first worked on the assumption that the Hoover Commission would recommend a combined department of health, education and security. Later the Commission indicated that such a recommendation might not be made and asked the Committee what its reaction would be to an independent health agency. The suggestion was that such a plan might be preferable to the combined department. The Commission, in its final report, was divided on the question.

* The Commission on Organization of the Executive Branch of the Government Medical Activities—A Report to the Congress, March, 1949, Washington, D. C., Supt. of Documents, 1949.

It was pointed out that in a combined agency, co-ordination of health, education and security would obviously be simpler than in separate departments. The combined agency would meet the Commission's objectives of reducing the number of agencies reporting to the President to a manageable number. The tendency for overemphasis on professionalism would be reduced to a minimum in the combined organization. It was suggested by one member of the Commission that even if a separate agency were established for medical care, the public health functions should be part of a combined department so that health activities relating primarily to state and local governments could be co-ordinated with similar programs operated by the federal Government in the fields of health, education and welfare. This type of arrangement, however, would separate curative and preventive health activities of the federal Government and would therefore be undesirable.

"In an independent agency, health functions would be segregated and not subject to irrelevant considerations relating to education and welfare. This might be desirable for certain other departments such as the armed forces, which would use medical services only. Health appropriations could be identified clearly as such. The implementation of special personnel policies considered necessary for the health field might be easier in a separate agency than if health were only one bureau of a combined department. In the separate agency pay and status of the top personnel would doubtless be higher and therefore more attractive than those of a bureau chief and his major subordinates in a combined department. It was suggested that even though a combination might eventually be desirable, the problem of integrating all the medical services to be included in the united health administration was such a great one that even if only as an initial step, a separate agency would be desirable."

The importance of giving first attention to the preventive health activities of the federal government can hardly be overemphasized. I should like the privilege of quoting from a letter addressed to the Honorable Chairman of this Committee dated March 28, 1950, as follows:

"The Hoover Commission's reports in the health field deserve very careful study. We should like to draw special attention to certain statements of its Committee on Medical Services which gave highest priority to public health, preventive medicine and research. The idea was stressed that only by knowledge and application of methods of *controlling* disease may increasing costs of medical care be kept within bounds."

The Committee said:

"The necessity for medical care which requires heavy expenditures and much personnel must not be permitted to result in minimizing the even greater importance of controlling disease." *

The point was also made that:

"Increases in expenditures for medical care are outstripping relatively those for control." * and the short-sightedness of such a policy demonstrated.

"Our Association is duty-bound to emphasize strongly to your committee the essential principle of preventive services and their importance in the federal government's health activities. When Congress finally adopts a plan for reorienting federal health agencies, careful provision should be made for so emphasizing the preventive services that they may be able to make their maximum contribution. Their place in the organization must be coördinated with their importance to our people. Decisions based on the relatively small portion of the federal "health dollar" which preventive services now receive would be faulty indeed.

"Finally nothing would be more appropriate than a further quotation from the report of the Hoover Commission's Medical Services Committee:

"Federal medicine has, to a large extent, developed negatively with patient care as its principal function. Transcending in importance any of our other recommendations, is the need to outflank disease by giving the highest priority to research, preventive medicine, public health and education." *

In our opinion, Reorganization Plan No. 27 provides a major step toward an opportunity for carrying out an important recommendation relative to the Children's Bureau made in the report of the Task Force on Public Welfare of the Hoover Commission, with which the Committee on Medical Services coöperated closely. This report states: †

"THE CHILDREN'S BUREAU

During its 37 years of operation, the Children's Bureau has developed services in those areas in which the rights of children have

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* *Ibid.*

† Task Force Report on Public Welfare, Appendix P—Commission on Organization of the Executive Branch of the Government, January, 1949, pp. 65–66, Washington, D. C., Supt. of Documents, 1949.

needed protection, such as: Children living under improper home conditions, juvenile delinquents, crippled children, and children working in industry. It has been responsible for legislation to protect children. It has a research program, but is not allowed to make research grants. It operates, under title V of the Social Security Act, three grant-in-aid programs: (1) For maternal and child care, (2) for crippled children, and (3) for child welfare services.

"When the Children's Bureau was in the Department of Labor it enjoyed a remarkable degree of autonomy, with the Chief being directly appointed by the President. At present the Bureau is administratively under the Social Security Administration and the Chief does not have direct access to the Federal Security Administrator. This arrangement makes it administratively difficult for the Bureau to perform its assigned functions of concerning itself with all the problems of children; of developing plans to meet these problems; and, in general, making sure that children are considered in all the planning of the FSA.

"It is therefore recommended that, in order to perform this broad function properly, the Bureau should be placed in the organization of the proposed Department of Health, Education and Security in a general staff capacity where it can advise the Secretary of the new Department as well as the Directors General of Health, Education and Security.

"It is also recommended that the scope of the Bureau be broadened somewhat beyond its present fields so that it may be equipped to deal more adequately with problems in the educational field."

The American Public Health Association wishes therefore to indicate its full support of Reorganization Plan No. 27. We believe that this plan to create a Department of Health, Education, and Security from the present Federal Security Agency is soundly conceived and in the best interests of our nation's health and welfare.

May I again express my appreciation and that of the American Public Health Association for the opportunity of appearing before this committee.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

S. Hamdi Agan, Istiklal caddesi No. 93, Izmit, Turkey, Director, Malaria Control Service of Kocaeli Province

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Statistics Section

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Capt. John T. O'Connell, M.C., U.S.N., U. S. Naval Hospital, Quantico, Va., Commanding Officer

Lois F. Roeder, 301 S. 18th, Apt. 11, Lincoln, Neb., Asst. in Travel Unit, Veterans Administration

WESTERN BRANCH, A.P.H.A., ANNUAL MEETING

The 17th Annual Meeting of the Western Branch of the A.P.H.A. and related groups was held in Portland, Ore., May 28–June 1, under the Presidency of Arthur L. Ringle, M.D., of San Francisco. The Secretary-Treasurer was Walter S. Mangold of Berkeley, Calif. The program was prepared by a committee under the chairmanship of Adolph Weinzirl, M.D., of Portland. More than 600 persons attended the four day sessions which were held in the Masonic Temple.

There were several conferences preceding the meeting, including those on maternal and child health and crippled children's services, health education, venereal disease control, sanitation, nutrition, and public health nursing.

The program for the four day meeting of the branch included general sessions on each half-day with a wide variety of technical interests, including reports on World Health Organization activities, modern trends in community health services, health consequences of an aging population, supplying future health personnel, and with special emphasis on regional problems of the western states and provinces. The first John J. Sippy Memorial Address was presented by William P. Shepard, M.D., San Francisco, President-Elect of the A.P.H.A.

The program featured a variety of leaders from outside the area of the Western Branch, including a considerable number from the federal services and most of the trustees of the American Board of Preventive Medicine and Public Health, Inc., which held meetings in Portland during the week. A total of 74 candidates for certification by the board were examined in Portland.

The new officers of the Western Branch, A.P.H.A., follow:

President—Wilton L. Halverson, M.D., State Director of Public Health for California

President-Elect—L. J. Peterson, Administrative Director, Idaho State Department of Public Health

First Vice-President—G. D. Carlyle Thompson, M.D., Director of Preventive Medical Services, Oregon State Board of Health

Second Vice-President—Charles L. Senn, Engineer-Director, Sanitation Bureau, Los Angeles City Health Department

Third Vice-President—Rena Haig, Chief, Bureau of Public Health Nursing, California State Department of Public Health

Secretary-Treasurer—Walter S. Mangold, As-

sociate Professor of Public Health, University of California School of Public Health

The new representative of the Western Branch on the A.P.H.A. Governing Council is Arthur L. Ringle, M.D., Assistant Chief, Tuberculosis Section, Veterans Administration Area Office.

SOUTHERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION, ANNUAL MEETING

The 19th Annual Meeting of the Southern Branch A.P.H.A. was held in Birmingham, Ala., April 27–29, 1950, with headquarters in the Y.W.C.A. Building. The President was George A. Denison, M.D., health officer of Jefferson County Board of Health, Birmingham, and the Secretary-Treasurer Ben Freedman, M.D., of Louisiana State Department of Health, New Orleans, La. The program was developed under the chairmanship of Dr. L. M. Graves, Health Officer of Memphis, Tenn.

Nine Sections are now organized in the Southern Branch, including Dentistry, Health Officers, Statistical and Clerical, Sanitary Engineering-Sanitation Officers, Public Health Biology, Nutrition, Laboratory, Public Health Education, and Public Health Nursing.

The program of the Branch featured both General Sessions and Sectional meetings and emphasized the health problems of the South, with particular reference to the present status of the eradication of malaria. Other features included the engineering aspects of home accident prevention, the prevention of dental caries, practical aspects of morbidity and mortality, reporting school health services, federal grant-in-aid programs, and the use of the A.P.H.A. *Evaluation Schedule.*

Among speakers from outside the area of the Branch were Miguel E. Bustamente, M.D., Secretary-General of the Pan American Sanitary Bureau, Washington; Haven Emerson, M.D., of the staff of the A.P.H.A., New York; Lawrence M. Fisher, Engineering Field Associate of the A.P.H.A.; Walter L. Mallmann, Ph.D., Michigan State College, East Lansing; W. W. Peter, M.D., Institute of Inter-American Affairs, Washington; Roscoe P. Kandle, M.D., Field Director of the A.P.H.A., New York; George M. Wheatley, M.D., Health and Welfare Division, Metropolitan Life Insurance Company, New York; and Reginald M. Atwater, M.D., Executive Secretary of the A.P.H.A., New York.

The officers elected at the Birmingham meeting for the year 1950–1951 are as follows:

President: Ben Freedman, M.D., Director, Public Health Training Center, Louisiana State Department of Health

Vice-President: C. C. Applewhite, M.D., Director, Local Health Services, North Carolina State Board of Health

Vice-President: Thomas L. Hagan, D.D.S., Dental Director, Region VI, U. S. Public Health Service, Atlanta, Ga.

Vice-President: Margaret Shackleford, Supervisor, Public Health Statistics, Oklahoma State Department of Health

Secretary-Treasurer: L. M. Graves, M.D., Director, Memphis-Shelby County (Term) Health Department

Representative to A.P.H.A. Governing Council: George A. Denison, M.D., Health Officer, Jefferson County (Ala.) Board of Health

January Journals Wanted

Due to the large number of new memberships and subscriptions received during the first six months of the year, the supply of January, 1950, *Journals* has become depleted and the Circulation Department cannot supply this issue to certain members and subscribers whose names were added to the mailing list late in June.

Contributions of the January *Journal* will be welcomed and should be sent collect to the American Public Health Association, 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Nurses—experienced for unorganized areas—Harney, Columbia, Gilliam, Wheeler Counties, Oregon. Salary open. Write: A. T. Johnson, Merit System Supervisor, Oregon Merit System Council for Local Public Health Personnel, 1019 S. W. Tenth Avenue, Portland 5, Ore.

Public Health Nurse—for generalized county nursing service in southeastern Minnesota. Salary open depending upon education and experience. Must be eligible for certification in Minnesota. Write: Dr. Fred Schradle, Chairman, Steele County Public Health Nursing Service, 114½ North Cedar St., Owatonna, Minn.

Public Health Nurses desiring experience in rural health program in southern Michigan, between Chicago and Detroit. Salary range—depending on qualifications and experience $2,900–$3,300. Depreciation and mileage allowance on own car. Four weeks vacation, liberal sick leave. Field training for fellowship students. Write: Medical Director, District Health Department, Coldwater, Mich.

Laboratory and X-Ray Technician needed for public health marine unit M/S Hygiene. Previous experience and training necessary. Salary with subsistence. Single applicants preferred. Write: Alaska Department of Health, Box 1931, Juneau, Alaska.

Qualified Public Health Nurse for attractive rural area on coast of northern California. Generalized public health program. Staff of 8 Public Health Nurses. Population 75,000; State Retirement Plan. Car furnished. Starting salary, $3,300. Write: Director, Humboldt-Del Norte County, Dept. of Public Health, 805 Sixth Street, Eureka, Calif.

Health Officers—several vacancies in Kentucky for County Health Unit Directors. Salary ranges from $5,100 to $7,200 per annum, plus travel allowance of 7¢ per mile. Write: Bruce Underwood, M.D., State Health Commissioner, 620 S. 3rd St., Louisville 2, Ky.

Health Educator—Master's degree in Public Health required. Opportunity for development of health education program in 300,000 population county. Salary range $269–$343.

Physical Therapist. Must be fully qualified. Ability to do polio work essential. Salary range $232–$296.

Public Health Physician. Pediatrics. Public school and child clinic work. Salary range $460–$587. Civil Service Position.

For the three positions listed above write: Civil Service, San Bernardino County, Personnel Office, 242 Third Street, San Bernardino, Calif.

Public Health Director. For Chief of Health Department in city, population 92,000. Present salary range $8,360–$9,200. Must have degree in Public Health with some experience in public health work; car allowance; annual and sick leave; and pension benefits.

Deputy Health Officer. Male. (Unassembled examination) Salary $7,280–$8,000. School and V.D. clinic work in city health department. Graduate of recognized medical college with license to practice in State of Michigan or reciprocal state and two years' experience in general practice of medicine; car allowance; sick and annual leave and pension benefits.

For further information on the two positions listed above write: Personnel Advisory Board, City Hall, Saginaw, Mich.

Public Health Nurses for expanding generalized service, including field training program with State University. Rural and urban experience in San Francisco Bay area. Completion of approved course in public health nursing required; 6½¢ on personal car. Salary range automatic $3,000 minimum to $3,696 maximum; 15 calendar days vacation; Civil Service retirement, two weeks sick leave the first year, with increase thereafter. Write: Director of Public Health Nursing, Alameda County Health Department, San Leandro, Calif.

District Nutrition Consultant—Master's degree with major in food and nutrition and two years of experience, one year in supervisory and consulting capacity. Present salary range $264–$315 monthly, probably raised to a higher range within six months. Write: Division of Child Hygiene, Ohio Department of Health, Columbus 15, Ohio.

Health Officer—1. Jackson-Washington County Unit, West Florida, population 46,000, personnel 12, budget $41,629. 2. Oskaloosa-Walton-Holmes County Unit, West Florida, population, 45,000, personnel 16, budget $53,800. Training or approximately one year's experience required, age 30–50. Beginning salary $6,900, plus travel 7½¢ per mile, amounting usually to $900–$1,000 per year. Apply to Wilson T. Sowder, State Health Officer, Florida State Board of Health, P. O. Box 210, Jacksonville, Fla.

Health Officer for New England industrial city of 22,000; formal training and some experience desirable for supervision of staff of three full-time and five part-time workers in generalized program; starting salary $6,500. Write: Mr. Lawrence J. Belisle, Chairman, Board of Health, North Adams, Mass.

Supervisors and Public Health Nurses. Population 256,000; suburban, industrialized and rural areas; county seat 8 miles from Baltimore. Generalized service including progressive school health program; 50 field nurses. One month's vacation; 5 day, 35½ hour week; sick leave; retirement plan. For use of personal car, allowance of 7¢ per mile. Supervisor: degree and experience required; beginning salary $3,600–$4,000, depending on qualifications; additional preparation in field of education, tuberculosis, orthopedics or mental hygiene preferred. Public Health Nurses, beginning salary from $2,300 (for trainee) to $2,700, depending on experience and education. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department. Towson 4, Md.

Deputy State Health Officer—in Caroline County on Maryland's eastern shore. Must have or be eligible for Maryland license to practise medicine, and have a Master's Degree in Public Health work; *or* five years' recent experience in public health work. Standard Salary $7,200–$9,000. Merit System position offering generous vacation and sick leave; automatic salary increases and retirement benefits. Write: Office of Employment Commissioner, 31 Light Street, Baltimore 2, Md.

Public Health Educator—daily examinations given for this position through September 30, 1950, by the Detroit Civil Service Commission. Minimum entrance qualifications include completion of a graduate curriculum in public health education plus recent experience in health education work. Salary range, $3,808–$4,030 per year. Interested applicants should write to the Detroit Civil Service Commission, 735 Randolph Street, Detroit 26, Mich.

Public Health Physicians I and II—District Health Officers—vacancies in Mankato, Rochester, Duluth, Worthington, Fergus Falls, and Little Falls. Liberal vacation and sick leave, and security of civil service. All candidates must be eligible to practise medicine in Minnesota. Public Health Physician I—should have completed one year of graduate study in public health or have experience in preventive medical work. Salary range $542–$612. Candidates for Public Health Physician II (salary range $628–$708) should have completed one year of graduate study in public health with experience in public health work. Interested physicians are urged to apply even though they have not completed the graduate study in public health. A special application form and further information may be obtained from the Minnesota State Civil Service Department, 122 State Office Building, St. Paul 1, Minn.

Health Officer — full-time-physician. United States citizen, holding an unlimited license to practise medicine in Indiana or eligibility for license. Salary, $8,500, supplemented by travel and necessary operation expenses. Write: L. D. Bower, Chairman, Clark County Board of Health, Jeffersonville, Ind.

Public Health Physician as Health Officer of a new single-county health department. Opportunity of organizing first staff and programs. County of 20,000 on Mississippi River in northwestern Illinois. Salary range $7,200–$9,000. Qualified health officer may start above minimum. Write: G. Alzeno, D.D.S., President, JoDaviess County Board of Health, Stockton, Ill.

Health Publications Editor—New York State Health Department. Salary $5,232–$6,407. Write: Mr. Richard Mattox, Personnel Officer, State Health Department, Albany, N. Y.

High School Nurse for local Health Department; starting salary $2,625; one month summer vacation; experience in public health and/or school nursing desired; state age, marital status, education, experience. Apply: Fairfield Health Department, 413 South Benson Road, Fairfield, Conn.

Public Health Nurse Supervisor (option School Hygiene) in a County Health Program adjacent to Washington, D. C. Urban-rural population 164,000. Full-time personnel 75. Must have B.S. in Public Health Nursing with at least three years

of approved experience, one of which shall have been in school nursing supervision. Salary $4,000–$4,800.

Public Health Nurses—(5) Salaries $2,640–$3,168; $2,860–$3,432; $3,080–$3,696; depending upon qualifications, training, and experience.

For above positions, write: Montgomery County Personnel Board, Rockville, Md.

Director of Public Health Nurses for County Health Department with generalized Public Health Nursing Program including three Crippled Children's Clinics and five Otological Clinics each year; 3 weeks' study leave every other year; 15 days vacation and 12 days sick leave allowed for each year; State Retirement System; ocean resort area 70 miles south of San Francisco. Qualifications: Bachelor's degree, Public Health Nursing credential with course of 8 months in supervisoral training and at least one year's experience in public health nursing on a generalized public health program. Opening salary $344 with increase to $395. Must own car; 8¢ per mile for mileage allowed.

Public Health Nurse for Santa Cruz County to work with seven other public health nurses in a generalized public health program. Qualifications: Bachelor's degree with a Public Health Nurse's certificate which will be equivalent to a California certification. Beginning salary $250 with increases to $300. Car is required and 8¢ per mile is allowed for official business. Fifteen days vacation and 12 days sick leave annually and a State Retirement System is in force.

For information on above positions, write: R. O. Ingham, M.D., Health Officer, Santa Cruz, Calif.

ANNOUNCEMENTS

Opportunities in Montana

Montana offers outstanding public health opportunity to qualified Public Health Physicians. Positions open for Director, Division of Maternal and Child Health and Crippled Children's Services; Director, Division of Disease Control, and Director, Division of Local Health Services, annual salary range $8,700–$10,875, starting at minimum, increasing after six months' satisfactory service to $9,135. Opportunity exists for advancement to Deputy State Health Officer with salary range, $9,300–$11,675, starting at minimum with $9,775 after six months. Write: Executive Officer, Montana State Board of Health, Helena, Mont.

Fellowships for the Study of Arthritis

The Arthritis and Rheumatism Foundation is offering fellowships for research in the basic sciences related to the study of arthritis. The fellowships will be selected by the Foundation's Medical and Scientific Committee.

The Foundation is anxious to back candidates rather than projects, institutions or hospitals. It hopes to arouse interest in arthritis in a wider circle of medical investigators.

Applications should be sent to the Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, N. Y. Applications received by September 15 of this year will be acted upon at that time and notification of fellowships made immediately. All applications must be received by January 1, 1951.

Opportunities Overseas

Physician Public Health Officers—A limited number of vacancies for Public Health Officers with Military Government in Japan and Okinawa. These involve supervision of Prefecture (State) Health Departments in all phases of preventive medicine and medical care programs. Excellent opportunity for broad experience in public health under two year contract in Japan, and one year in Okinawa, renewable if desired. Salary $6,400–$9,500, free housing for health officer and family, plus free transportation to and from Japan or Okinawa. For details and application form write Chief, Public Health and Welfare Section, GHQ, SCAP; APO 500, c/o Postmaster, San Francisco, Calif.

Opportunities in Mississippi for Physicians

Positions are available in county or district health departments of Mississippi. Salary $5,600–$7,200, with $70 monthly travel allowance. Public Health scholarships available with liberal stipends. Men and women physicians eligible. Write: Felix J. Underwood, M.D., Mississippi State Board of Health, Jackson, Miss.

Opportunities in Illinois

1. Public Health Physicians for two District Offices of State Health Department; southern Illinois locations; one in University town. Salary $5,760–$7,656, with possibility for promotion for capable individual. Excellent Civil Service and Retirement System.

2. Public Health Physician for Assistant Chief, Division of Local Health Administration, State Department of Public Health. Salary range $5,760–$7,656. May start above minimum.

3. Public Health Physician for Champaign-Urbana Public Health District. Excellent grade and high schools; State University; population 48,000. Salary range $7,500–$9,000. Competitive examination planned for late August.

For information write Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

4. Medical Health Officer for Shelby-Effingham County Health Department; Central Illinois location; good schools; excellent rural communities; possibility of renting living quarters in health department

building if no children; salary range $6,900–$9,000; may start above minimum; must have capacity for good public relations. Write to Mr. J. H. Griffin, Teutopolis, Ill.; or to Dr. O. G. Kauder, Findlay, Ill.

5. Public Health Physician as Medical Director of Bi-County Health Department in southwestern Illinois on Ohio and Mississippi Rivers. Important Public Health job to be done. Salary $7,000. Apply Mr. Lloyd Cannon, Secretary, Alexander-Pulaski Bi-County Board of Health, Cairo, Ill.

Appointment of Veterinarians to the Regular Corps of the Public Health Service

A competitive examination for appointment of Veterinarians to the Regular Corps of the U. S. Public Health Service will be held on October 9, 10, and 11, 1950. Examinations will be held at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates. Applications must be received no later than September 11, 1950.

Appointments will be made in the grades of Assistant Veterinarian (equivalent to Army rank of First Lieutenant) and Senior Assistant Veterinarian (equivalent to Captain). The names of applicants who successfully complete the examination will be placed on a merit roll, from which appointments will be made to fill current and future vacancies. Requirements: Both grades—Citizenship; at least 21 years of age; graduation from an accredited school of veterinary medicine. Assistant Veterinarian: at least 7 years of educational training and professional experience subsequent to high school. Senior Assistant Veterinarian: at least 10 years of educational training and professional experience subsequent to high school.

Application forms may be obtained by writing to the Surgeon General, U. S. Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers.

POSITIONS WANTED

Public Health Dentist, M.P.H., experience in dental clinics including children's dentistry; 2 years in private practice. Male, single, 31; interested in position in governmental or voluntary agency or industry. Write **Box D-7,** Employment Service, A.P.H.A.

Health Educator, Master's Degree from accredited school of public health including field work. Veteran, 27, male. Experience in adult teaching, group work, and welfare investigation. Write **Box H.E-25,** Employment Service, A.P.H.A.

Public Health Public Relation and Information Director, male 45, with experience in state public health, printing, fund raising, welfare, and education, desires connection with a health agency, preferably in public information or public relations aspect. Write **Box Mi-1,** Employment Service, A.P.H.A.

Bacteriologist, female, B.S. in chemistry, 23 hours bacteriology, registered M.T. (A.S.C.P.). Six years' experience in public health bacteriology in addition to seven years' experience in general clinical laboratory work. Interested in medical and public health bacteriology. Write **Box LD-11,** Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau. Palmolive Building, Chicago 11, Ill.

Opportunities Available

PHYSICIANS WANTED—(a) Health officer and, also, deputy health officer; town of 100,000 located short distances from university medical center and several large cities; salaries $8,360–$9,200, and $7,280–$8,000 respectively. (b) Woman physician; student health department; young women's college; nine month year; $5,600. (c) Public health physician to divide time between teaching public health and preventive medicine in medical school and administrative duties in city-county health department; South. (d) Deputy commissioner of preventive medicine; key appointment requiring outstanding administrator; $8,000–$10,000; state department of health. (e) Physician qualified to serve as director of teaching hospital and, also, associate professor of health in university medical school. (f) Health officer, and, also, assistant health officer; department undergoing reorganization, serving population of 40,000; island in Pacific; temperature average 81° F. year round; healthful climate; salaries $9,500 and $7,700 respectively. (g) Director of student health; liberal arts college; 3,500 students; nine month year; $7,000 including apartment; South. (h) Assistant director of public health and, also, public health medical officer; duties of latter principally with children; Southern California. (i) Public health director; two township district set-up; population 70,000; $7,500–$9,000. **PH8-1.**

WANTED—(a) Public health engineer; minimum three years' experience, preferably in tropical or backward countries, required; $6,000, maintenance, other prerequisites; Arabia. (b) Health educator, department of health, town of 50,000; Southeast. (c) Health educator to serve as program secretary, state organization; duties include serving several program committees, working with other health agencies on joint projects; $5,000–$6,000. (d) Public health engineer to direct industrial health program, county health department, California. (e) Two young women with Master's degrees in health education; city health department, operating five new health centers; one educator should be particularly interested in writing, radio or television; university medical center. (f) Consulting public health sanitarian; three years' administrative experience desirable; California. (g) Director of health education; duties involve community-wide education in twenty communities, schools, industry; New England. (h) Sanitary engineer; health department under reorganization, serving population of 40,000; island in Pacific; temperature average 81° F. year round; healthful climate; $7,700. **PH8-1.**

WANTED—(a) Several public health nurses to serve as industrial health consultants; educational program of large industrial company; headquarters in Chicago, Boston, or New York. (b) Public health supervisor; generalized program; college town of 70,000, Midwest. (c) School nurse to take charge of health program in public schools; residential town near Chicago. (d) Two staff nurses; county health department; college town, resort area of western state. (e) Two well qualified public health nursing consultants and, also, nursing education consultant; Latin America. (f) Instructor, public health nursing, new four year program being established by eastern university. (g) Public health nurse to teach personal hygiene and assist with public health activities, large college infirmary, young women's college, South. (h) Director of public health nursing; experience in directing generalized program, graduate degree, required; large university; East. (i) Director of public health nurses; generalized program including clinics; resort area, Southern California; $4,200–$4,800. (j) Student health nurse with administrative ability; liberal arts college; Middle West. **PH8-3.**

Opportunities Wanted

Dentist; graduate training in public health and, also, children's dentistry; six years, director, dental division state health department.

Health Educator; B.S. (School Health Education); M.A. (Public Health Education); five years, health education consultant, state department of health.

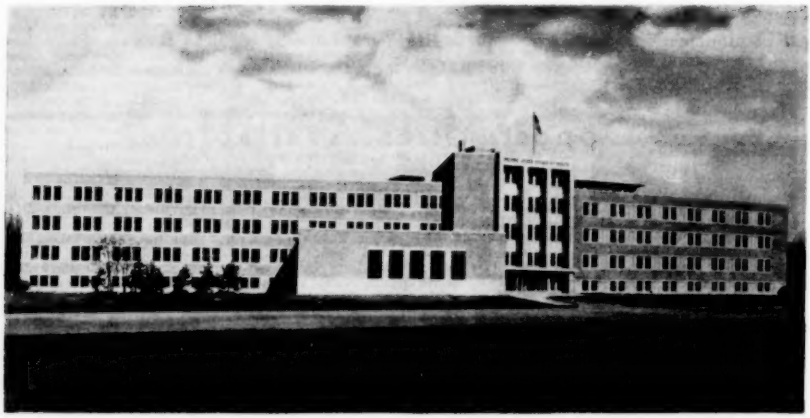
Malariologist; recently completed two year contract in Arabia in charge of household insect control work; especially interested in organizing malaria control and laboratory program.

Public health physician; M.P.H.; several years rural county health experience; seven years, director department of health, city of 200,000; Diplomate, American Board of Preventive Medicine and Public Health.

Public health nurse; M.A., Health Education; has completed all work toward her doctorate; eight years, director of health and health educator, metropolitan public school system.

Sanitary engineer; B.S., Civil Engineering; several years, sanitary engineer, tropics; past four years, chief, engineering division, county department of health; serving population of 150,000.

NEWS FROM THE FIELD



The new building of the Indiana State Board of Health, Indianapolis, was occupied in July. The wing on the left includes general administrative quarters, and that on the right laboratory facilities. A large north wing is not shown in the photograph. An auditorium which can be used separately from the rest of the building stands in front. The physical plant now under construction includes beside this building the Indiana University medical campus, the Indianapolis General Hospital, and the Veterans Hospital and all together is costing about $25,000,000.

CATEGORICAL APPROPRIATIONS FOR PUBLIC HEALTH

The Social Legislation Information Service points out that U. S. federal grants to the states for "general public health work" are used for financing the maintenance of state and local health departments and for general health services. President Truman had proposed that the appropriation for general public health work be increased from about $14,000,000 to more than $23,000,000 "in order to strengthen these general health services and also for extension of the services to some of the areas which have no organized local public health set up."

In recommending only a nominal increase of $301,000 to permit continuation of the current level of operation, the House Appropriations Committee commented: "There are only so many federal dollars available for assignment to the countless number of activities which the government is called upon to support. The rate of expansion suggested under this item is far and above what can be afforded; the increase therefore has been denied. Furthermore the committee prefers, at least for the time being, to retain emphasis on the various categorical appropriations for such public health purposes as venereal diseases, tuberculosis, cancer, heart, and mental health rather than supplant portions of those appropriations with increased general health grants."

MENTAL HEALTH "BIERRING AWARD"

A new award, known as the Dr. Bierring Award, will be presented annually by the Iowa Society for Mental Hygiene to the organization which has given outstanding mental health service in the

state. The society has honored Walter L. Bierring, M.D., secretary of its advisory committee and Iowa Commissioner of Health, in this way because he was instrumental in establishing the society.

STATE SANITARY ENGINEERS MEET

The 30th annual meeting of the Conference of State Sanitary Engineers was held in Washington, May 17–19. Representatives from health departments of 45 states, Hawaii, and Alaska, and a representative from Canada attended. Topics discussed included air pollution, civil defense, accident prevention, and stream pollution. The newly elected officers are:

Chairman—C. M. Everts, Jr., Director, Division of Environmental Sanitation, Oregon State Health Dept.

Vice-Chairman—Earl Devendorf, Director, Division of Sanitation, New York State Health Dept.

Secretary-Treasurer—C. H. Atkins, Chief, Division of Sanitation, U. S. Public Health Service

NURSES STUDY REGIONAL PLANNING

The Division of Nursing Education, Teachers College, Columbia University, held a work conference on "Regional Planning for Nursing and Nursing Education" at Plymouth, N. H., June 12–23. A first attempt to develop regional coordination and coöperative planning for nursing and nursing education, "the background of this meeting," to quote its sponsor, "is what is happening now in the whole health field and the legislation pending in Congress. Several groups of planners have been considering some of the problems of education for the health services in the nation, but to date, little has been done to include nursing in this planning." Some 40 persons from 20 states representing nursing education, hospital nursing, public health nursing, participated constructively in the workshop, thus adding another chapter to the already considerable body of experience in regional social planning. Dr. Gordon Blackwell of the Institute for Research in Social Science at the University of North Carolina was the conference leader.

NUTRITION CONSULTANTS TO USPHS

The following physicians were recently appointed as consultants on nutrition to the U. S. Public Health Service in order to broaden the effectiveness of technical assistance to states and local communities:

A. Hughes Bryan, professor of nutrition, University of North Carolina School of Public Health

William J. Darby, director, Division of Nutrition, Vanderbilt University

Grace A. Goldsmith, professor of medicine, Tulane University

Philip C. Jeans, head of Department of Pediatrics, State University of Iowa

Norman Jolliffe, director, Bureau of Nutrition, New York City Department of Health

Robert E. Shank, professor of preventive medicine, Washington University

Frederick J. Stare, professor of nutrition, Harvard University

Richard W. Vilter, associate professor of medicine, University of Cincinnati

1949 BORDEN AWARDS

Among the nine 1949 Borden awards the following in the medical and public health field were announced recently, together with the agency administering the award:

Fuller Albright, M.D., associate professor of medicine, Harvard Medical School "for extraordinary original and monumental contributions to the understanding of the metabolism of the bone and other tissues." The Association of American Medical Colleges.

Raymond R. Birch, D.V.M., professor emeritus of veterinary research, New York State Veterinary College "for more than a quarter of a century of research on brucellosis." American Veterinary Medical Association.

Kate Daum, Ph.D., associate professor of dietetics, State University of Iowa Medical School "for studies on the influence of various levels of thiamine intake on physiologic response." American Home Economics Association.

Harry J. Deuel, Jr., Ph.D., dean of the graduate school, University of Southern California "for researches pertaining to the metabolism of carbohydrates." American Institute of Nutrition.

Alfred H. Washburn, M.D., research professor of pediatrics, University of Colorado School of Medicine "for his significant researches on the blood of infants and children, and his continuing studies of growth and development of the young from birth to adolescence." American Academy of Pediatrics.

The Borden awards were established in 1936 to encourage outstanding research in the United States and Canada. Administered by professional or scientific associations, each award consists of a gold medal and $1,000.

MIDDLE STATES HEALTH ASSOCIATION

The first meeting of the Middle States Public Health Association, comprising the 12 North Central States, was held in Des Moines, Ia., May 8 and 9. A constitution was adopted, officers elected, and plans made for applying to the American Public Health Association to become its third regional branch. The 1951 meeting will be held in Chicago, April 18 and 19. Officers are:

President: Walter L. Bierring, M.D., Iowa Health Commissioner

President-Elect: E. H. Jorris, M.D., Assistant Wisconsin Health Officer

Vice-President: William J. Downer, Assistant Sanitary Engineer, Illinois Health Department

Secretary-Treasurer: Leonard C. Murray, Iowa Director of Public Health Education

DR. BAEHR DIRECTS H.I.P. OF NEW YORK

George Baehr, M.D., former president of the New York Academy of Medicine, has been elected president and medical director of the Health Insurance Plan of New York to devote his full time to the organization's work. Dr. Baehr as president will succeed David M. Heyman who becomes chairman of the board. As medical director, Dr. Baehr will succeed Dean A. Clark, M.D., who resigned to become general director of the Massachusetts General Hospital. At the same time new members of the Board of Directors of H.I.P. were elected, including among others, William Reid, Deputy Mayor of New York City as vice-chairman; Claude E. Heaton, M.D., and John B. Pastore, M.D., of New York.

C.D.C. SPONSORED TRAINING COURSES

The Communicable Disease Center of the U. S. Public Health Service in its June *C.D.C. Bulletin* lists the various training courses it sponsors during the latter half of 1950. This listing and further information is also available in its *Bulletin of Field Training Programs*, Atlanta, Ga.

MILLIONS FOR CARDIAC RESEARCH

The Life Insurance Medical Research Fund recently made awards totaling nearly three-quarters of a million dollars to medical schools and other research centers during 1950 for the study of heart disease and the training of research scientists—$548,000 for research grants, $122,000 to 34 research fellows. A total of 51 separate research projects in 36 institutions in 24 states received grants in amounts varying from $2,100 to $21,000. The total amount given out by the fund since its organization in 1945 is $3,200,000. It is supported by 147 life insurance companies of the United States and Canada and in 1949 received a Lasker Award of the American Public Health Association.

RAPID TREATMENT CENTER CLOSES

The Michigan Rapid Treatment Center at Ann Arbor, which has handled 13,000 cases of venereal diseases during 6 years of operation, closed its doors on June 30. The closing is in line with the decentralization of public health responsibilities to local communities. During this period reported cases of syphilis in Michigan decreased from 17,000 to 18,000 a year to about 8,700 a year in 1949. With the closing of the center, control and treatment of venereal dis-

ease cases reverted to the local county, where it is placed by statute. Twenty-three venereal disease clinics are now operated by local health departments in the state. The Michigan Department of Health assists the local health departments in the control programs.

HOW DOES POLIO SPREAD?

Three cities of the United States—Charleston, W. Va.; Topeka, Kan.; and Phoenix, Ariz.;—are the guinea pigs for still another attempt to study the route that infantile paralysis takes in its journey from one person to another. Interviewers from the Communicable Disease Center of the U. S. Public Health Service will examine samples of the populations of the three cities with regard to the various minor ailments that are often the symptoms of mild polio. When a polio epidemic paralyzes any one of these cities, it is thus hoped to find out whether it is accompanied by a wave of these "minor morbidities" on which the polio label can also be pinned. If so, it is reported, "the picture of polio might well be completed."

RESEARCH GRANT TO M.I.T.

The John Hancock Mutual Life Insurance Company of Boston and the Massachusetts Institute of Technology have entered into a plan under which the insurance company will give financial support for research in the amount of $100,000 covering a period of five years. Under this plan the company will benefit from the institute's research in medicine, biology, food technology, and high speed computing.

PITTSBURGH APPOINTMENTS

The Graduate School of Public Health, University of Pittsburgh, has made the following appointments: Dr. Francis S. Cheever, as professor of microbiology to continue his research in bacteriology, virology, and immunology, assist in teaching epidemiology, and carry the responsibility of organizing and teaching courses in microbiology and immunology; William H. Ray, formerly in the Health Physics Division, Oak Ridge National Laboratory, as research associate in the department of occupational health; Gladys E. Sather, M.P.H., as research associate in the department of epidemiology and bacteriology.

BUFFALO USES ITS UNWANTED DOGS

The Buffalo (N. Y.) City Council in May passed an ordinance that would save unwanted dogs and cats formerly destroyed by the S.P.C.A. for medical institutions in the city carrying on studies in various health problems. In June the council overrode the Mayor's veto of this ordinance. At the same time the council provided for administration of the pound by the city. The S.P.C.A. had formerly administered it on a contract by which the agency received $20,000 to destroy unwanted animals. Medical scientists in other cities in the state are now studying plans for similar use of unwanted dogs and cats throughout the state.

ATOMIC WARFARE CIVIL DEFENSE

The National Security Resources Board, in coöperation with the U. S. Atomic Energy Commission, has issued a selected reading list on civil defense against atomic warfare. It includes sections on the general aspects of atomic disaster planning, on radiation detection and protection, on biological and medical effects of radiation, effects of atomic bombing on Hiroshima and Nagasaki, decontamination and disposal of radioactive materials, and city and industrial vulnerability to atomic bombing.

Supt. of Documents, U. S. Gov. Ptg. Office, Washington 25, D. C., 10¢.

IODINE TO DISINFECT DRINKING WATER

A recommendation that the armed forces adopt and standardize a compound releasing free iodine for individual

disinfection of drinking water in canteen quantities has been made by the Committee on Sanitary Engineering and Environment of the Division of Medical Sciences, National Research Council. This resulted from a controlled six month research study, in which approximately 220 military and native population of Majuro, in the Marshall Islands, participated. It was found that compounds releasing free iodine in concentrations of eight parts per 1,000,000 were highly effective disinfecting agents, and produced no ill effects among personnel using water thus treated. Although iodine had been used previously for water disinfection, this experimental work was the first conclusive study carried on to determine toxicity to humans.

DR. WAKIM TO UNIVERSITY OF SYRIA

Dr. Khalil G. Wakim, professor of physiology at the Mayo Foundation and medical research consultant at the Mayo Clinic, Rochester, Minn., left in March for Syria to serve as a visiting professor at the National University of Syria at Damascus, and to assist in the reorganization of the medical school of the university under a three month grant awarded by the Department of State in coöperation with the Mayo Foundation and Clinic. This is the first grant awarded in the Eastern Hemisphere to a visiting professor under the exchange of persons' program authorized by the Smith-Mundt Act. Ultimate development of a school of public health for local training of Syrian Health Department workers is expected as an outgrowth of the project.

The Smith-Mundt Act, called the U. S. Information and Educational Exchange Act of 1948, was passed by the 1948 Congress of the United States. It has two main elements, (1) an information service to disseminate facts about the United States in various countries, and (2) an educational exchange service to coöperate with others in:

a. the interchange of persons, knowledges, and skills;
b. the rendering of technical and other services;
c. the interchange of developments in the field of education, the arts, and sciences.

The interchange, on a reciprocal basis, of students, trainees, guests, professors and other teachers, and leaders in specialized fields of knowledge or skills is authorized.

INDUSTRIAL WASTES AND WATER

The National Technical Task Committee on Industrial Wastes, was organized during a recent meeting of representatives of industry and federal and state health authorities in Washington, D. C., May 9–10. Concerned chiefly with industrial waste disposal affecting the country's water resources, the committee set itself three immediate tasks: (1) to assemble a source list of existing processes and practices employed in using and controlling industrial wastes; (2) to assemble a tabulation of research projects; (3) to define problems confronting different segments of industry for which there is as yet no satisfactory solution. Four "task groups" on food industries, mineral products, chemical products, and general industries, respectively, were established as working committees.

Officers elected were:

Chairman—Lyman Cox, DuPont and Co., Inc., Wilmington
Vice-Chairman—Dr. Harry Gehm, Paper and Paperboard Industries, Inc., New York City
Secretary—Louis F. Warrick, Division of Water Pollution Control, U. S. Public Health Service

NEW DEPARTMENT OF PUBLIC HEALTH

The University of Illinois College of Medicine in Chicago has created a department of public health which will offer graduate instruction in public health leading to a Master of Science degree. It is planned eventually to train specialists in public health administra-

tion, in the various medical public health specialties, and in health education, nursing, nutrition, engineering, statistics, and laboratory practice. Howard J. Shaughnessy, Ph.D., who is director of laboratories of the Illinois State Department of Health, will serve also as professor and head of the new department of public health. He has been professor of bacteriology in the Medical School since 1943.

VIRGIN ISLANDS MENTAL HEALTH BULLETIN

In April, 1949, the Department of Health of the Virgin Islands established a Division of Mental Health. One year later it began the publication of a *Bulletin of Mental Health*. Vol. I, No. 1, is the issue of Spring, 1950. It outlines the program of the division and some of the background for it by a teacher, a judge, a social worker, and others.

Mrs. Eldra L. M. Shulterbrandt, psychologist and director of the division is Editor of the *Bulletin*. The Islands Health Commissioner is John S. Moorhead, M.D.

AMERICAN WATER WORKS ASSOCIATION

The 70th Annual Meeting of the American Water Works Association was held in Philadelphia, May 21–26. The new officers who took over their duties on conclusion of the meeting are:

President—W. Victor Weir
Vice-President—A. E. Berry
Treasurer—William W. Brush

The following awards of special interest to A.P.H.A. members were made:

Elected to Honorary Membership: Jack J. Hinman, Jr.

The Goodell Prize for 1949 was awarded to the committee which prepared the report "The Fluoridation of Public Water Supplies —Statement of Recommended Policy and Procedure." Those receiving the award were: A. P. Black, Chairman, A. E. Berry, L. H. Enslow, H. A. Faber, R. J. Faust, W. V. Weir, and H. T. Dean, D.D.S.

Recipients of the George Warren Fuller Award from the local association indicated: Herbert A. Kroeze, Alabama-Mississippi Section; Helen Cowden Rotthaus, Arizona Section; Frank C. Dugan, Kentucky-Tennessee Section; Gordon M. Fair, New England Section; Hugh A. Wyckoff, Southeastern Section; Edward S. Hopkins, Chesapeake Section.

INSECTICIDE DIRECTORY

The Eastern Branch of the American Association of Economic Entomologists has published the 8th edition of *Entoma —A Directory of Insect and Plant Pest Control*. Although many insecticides of interest only to agriculturists are considered, there are also many of immediate concern to the public health worker. Brief descriptions of the usefulness and methods of application of insecticides are included, as well as a directory of commercial organizations from which insecticides may be obtained. Available from George S. Langford, Department of Entomology, University of Maryland, College Park, Md., $1.50.

HONOR TO THE LATE DR. LLOYD NOLAND

The Employees Hospital of the Tennessee Coal, Iron and Railroad Company, Fairfield, Ala., including 350 beds serving more than 30,000 employees and their families, was renamed on April 22 in honor of Lloyd Noland, M.D., under whose direction the hospital was built. Dr. Noland had worked in the Birmingham District since 1913 on the health problems of T.C.I. employees. Dr. Noland, who died in 1949, was for many years a Fellow of the American Public Health Association.

DEATH OF DR. SNOW

William F. Snow, M.D., a pioneer and long a leader in the field of social hygiene, died suddenly on June 12 in Bangor, Me. Dr. Snow was General Director Emeritus and Chairman of the Board of the American Social Hygiene Association and President of the International Union Against the Venereal

Diseases. His useful career included such important posts as university physician and Professor of Hygiene and Public Health at Stanford University, member of the National Council of Defense and head of venereal disease prevention measures with the American Expeditionary Forces during the First World War, chairman of the League of Nations Committee to Study Traffic in Women and Children, State Health Officer of California, President of the National Health Council, President of the Conference of State and Provincial Health Authorities of North America, lecturer on Preventive Medicine at Johns Hopkins, New York and Columbia Universities, special consultant for the U. S. Public Health Service, and, during World War II, a member of the Government's Interdepartmental Venereal Disease Committee.

Dr. Snow became a member of the American Public Health Association in 1909 and a Charter Fellow in 1922. His contributions to the A.P.H.A. included service as chairman, vice-chairman, and secretary of the Sociological Section, the forerunner of the present Health Education Section, and membership for several terms on the Governing Council.

DR. THOMPSON NAMED MONTANA STATE HEALTH OFFICER

The appointment has been announced of Dr. G. D. Carlyle Thompson of the Oregon State Department of Health, Portland, as Executive Officer to the Montana State Board of Health, Helena, effective August 1. Dr. Thompson, who has resigned as Assistant State Health Officer and Director of the Division of Preventive Medical Services in Oregon, will succeed Dr. B. K. Kilbourne, who resigned in April.

Dr. Thompson, who grew up in Detroit, received his medical degree from the University of Michigan in 1928, since which time he has had 14 years of public health experience in civilian and military capacities, including 3 years as Regional Medical Director with the U. S. Children's Bureau. Dr. Thompson received his M.P.H. from the University of California in 1947. He is certified as a specialist in public health by the American Board of Preventive Medicine and Public Health, Inc.

INSERVICE TRAINING IN PLUMBING PROBLEMS

The University of Michigan School of Public Health, Ann Arbor, continues its program of practical education by offering an Inservice Training Course in Plumbing Problems on September 15 and 16 at the School of Public Health. The course was organized at the request of the Plumbing Inspectors' Association of Michigan and will consist of a study of fundamental factors involved in established plumbing practices plus some of the new problems. Plumbing inspectors, sanitarians, and engineers are particularly invited. Enrollment $5. Write H. E. Miller.

BIBLIOGRAPHY ON AIR POLLUTION

A bibliography on the biological aspects of air pollution has been compiled by the U. S. Public Health Service, Division of Industrial Hygiene, and printed for distribution by the United Steel Workers of America. It includes references to publications both in this and other countries. Copies are available from the Division of Industrial Hygiene, U. S. Public Health Service, Washington, D. C., free of charge as long as the supply lasts, or from the Department of Publicity, United Steel Workers of America, 1500 Commonwealth Building, Pittsburgh 22, Pa., 50¢.

ARMY HEPATIC CENTER MOVED

The Office of the Surgeon General, Department of the Army, announces the transfer of the Army Hepatic and Metabolic Center from Valley Forge General Hospital to Walter Reed Gen-

eral Hospital, Washington, D. C. The Center will continue its investigation of the recognition and treatment of infectious hepatitis and research on the functioning of the liver. Research director of the Center is Victor M. Sborov, M.D.

INTER-AMERICAN ARCHITECTS MEET

The 7th Pan American Congress of Architects was held in Havana, April 10–16, 1950, with 680 delegates from 19 countries present. The Congress included an exhibit of architecture and city planning in which hospitals, clinics, and sanitaria in different countries of the Western Hemisphere were featured. The Pan American Federation of Architects Associations was organized as a permanent inter-American professional society. The Eighth meeting of the Congress will be held in Mexico City in 1952. Anatole A. Solow represented the A.P.H.A. at the Havana meeting.

WHO NEWS

New President

Rajkumari Amrit Kaur, Minister of Health for India, was elected president of the Third World Health Assembly succeeding Dr. Karl Evang of Norway. Dr. J. A. Höjer of Sweden was elected chairman of the Committee on Programme.

Executive Board Meeting

Dr. Harry S. Gear, Deputy Chief Health Officer of the Union of South Africa, was elected Chairman of the Executive Board of WHO at the meeting following the close of the Third World Health Assembly in May, 1950. He succeeds Sir Arcot Mudaliar of India. Vice-Chairmen are Dr. M. de Laet of Belgium and Colonel M. Jafar, Director General of Health of Pakistan.

Some of the decisions made at this Executive Board meeting were:

1. Two important themes were chosen as the keynote of the Fourth World Health Assembly to begin in Geneva May 7, 1951—
   a. The training of medical and public health personnel.
   b. Economic value of preventive medicine.
2. Medical supplies for execution of health programs, amounting to $100,000 were granted to 9 of 13 countries requesting such supplies —Afghanistan, Ethiopia, Finland, India, Jordan, Monaco, Portugal, Thailand, and Yugoslavia. The principles under which WHO grants such supplies were based on—
   a. The importance of the program to the country and relationship to WHO priorities and
   b. A guarantee from the receiving country that it will carry out the program and will utilize supplies in a correct way.
3. Voted to publish the report of the Expert Committee on Antibiotics and the Director-General was authorized to carry out its recommendations.
4. Decided to hold the next meeting of the Executive Board, its seventh, in Geneva in January, 1951.
5. The International Conference for Social Work was admitted into official relationship with WHO.

Expert Committee on Rabies

The report of the Expert Committee on Rabies, which held its first session in Geneva in April, 1950, is now available, in either French or English, as an official document of the WHO Technical Report Series and may be obtained from Sales Section, World Health Organization, Palais des Nations, Geneva, Switzerland.

Typhus Control in Afghanistan

At the request of the New Delhi Regional Office, the Pan American Sanitary Bureau in May and June air-shipped to New Delhi antityphus vaccine destined for use by the Afghanistan government in the effort to conquer recurrent outbreaks of louse-borne typhus.

Pan American Sanitary Bureau

Milk Control Study in Colombia—At the request of the Colombian Government, the WHO Regional Office for the Americas, arranged for a study of the milk industry in Colombia by Col. James C. Barta of the Veterinary Services of the U. S. Air Forces. Currently only about 20 per cent of fluid milk consumed is pasteurized. Lack of funds and tech-

nical personnel has so far been a bar to reducing the incidence of milk-borne disease. The report recommends that the sanitary control of milk be placed under the jurisdiction of the National Health Department, that all milk be pasteurized according to accepted methods under proper sanitary conditions, and that programs for the control of bovine tuberculosis and other communicable diseases be undertaken.

Garbage Cans for Venezuela—At the request of the Venezuelan Government, the P.A.S.B. has obtained best quality garbage cans, which will finally total 40,000, as well as other sanitary equipment, to be used in a fly control campaign in the Venezuelan port of Maracaibo.

Onchocerciasis Treatment in Guatemala—P.A.S.B. located suramin sodium in Germany, had it processed in vials under nitrogen and sent to Guatemala where a team of P.A.S.B. technicians was arranging for the mass treatment of 1,000 patients with the drug in order to test its efficacy for curing onchocerciasis. Hitherto the only cure had been surgery for the removal of the nodules caused by the nematode worm, the etiologic agent of the disease.

HOW DANGEROUS IS LABORATORY WORK

In the belief that significant increases in laboratory infections have occurred as modern medicine has required increased numbers of laboratory technicians to handle potent disease-producing agents, a survey of the incidence of infection among laboratory and research workers is now under way. Said to be the first comprehensive survey in this country, it is being conducted with the assistance of a grant from the U. S. Public Health Service. Information on numbers and types of infections that have occurred in individual laboratories has been requested from some 15,000 laboratories.

The survey is being made by Drs. S. E. Sulkin and R. M. Pike of Southwestern Medical College, University of Texas. Their findings will be reported at a special symposium on protective measures against laboratory-acquired infections arranged as a part of the 78th annual meeting of the American Public Health Association in St. Louis, October 30–November 3.

PERSONALS

LILA H. BECKER has been appointed social worker with the rheumatic fever program in Pima, Cochise, and Santa Cruz Counties, Arizona State Health Department.

LUCY BLAIR, R.N.,† most recently National Organization for Public Health Nursing consultant, has been appointed director of the Poliomyelitis Recruitment Service of the American Physical Therapy Association, succeeding MARY HASKELL, resigned. The service acts as the national information bureau in meeting emergency needs for physical therapy service during epidemics.

DONALD S. BENSON, who has edited "The Welfare Reporter" of the State Department of Institutions and Agencies since it was first established in 1946, is now director of public relations of the New Jersey State Department of Health.

WALTER E. BOEK has been appointed chief research analyst by the Health Information Foundation. He formerly directed research in the Department of Sociology and Anthropology, Michigan Agricultural Extension Service.

B. S. BRAKE, M.D., has been appointed Health Officer of district 3, Jackson, Mason, Putnam, and Roane Counties, W. Va.

LONNIE B. BRIGHT has been added to the staff of the Venereal Disease Control Division, Oregon State Department of Health.

JOHN H. BROWE, M.D.,† who has completed his period as physician-in-training, has been appointed director, Bureau of Nutrition, Division of Medical Services, New York State Department of Health.

JOHN T. CARPENTER, assistant executive secretary for the past 4 years, has been made executive secretary of the Vermont Tuberculosis Association, succeeding HAROLD W. SLOCUM, retired.

DEAN A. CLARK, M.D.,* director of Massachusetts General Hospital and former director of the Health Insurance Plan of New York, on nomination of Senator H. Alexander Smith of New Jersey, will direct the special study of voluntary prepayment plans

for medical care to be made by the Senate Labor and Public Welfare Committee.

C. C. COFFINDAFFER, M.D., has been appointed Health Officer of district 5, Grant, Hampshire, Hardy, and Mineral Counties, W. Va.

FELIX HURTADO, M.D.,† Chairman of the Cuban Branch, American Academy of Pediatrics, has been appointed Permanent Delegate of the Cuban Government to WHO by Carlos Ramirez Corria, M.D., the Minister of Health.

A. W. DALTON,† associate, Program Development, National Tuberculosis Association, has succeeded ELIZABETH M. PATERSON as administrative assistant to JAMES E. PERKINS, M.D.,* managing director.

JAMES A. DOLCE, M.D.,* who has been deputy commissioner and in charge of Maternal and Child Health Services in the Erie County Health Department, Buffalo, N. Y., has resigned to become director of public health for Phoenix, Ariz.

HAZEL DUNN, M.D., has resigned from the staff of the Community Council, Bridgeport, Conn., where she served as community nutritionist, to become health education secretary on the staff of the Rochester Tuberculosis and Health Association, N. Y.

THOMAS STONEHAM EDWARDS is the winner of the 1950 Geiger Medal of Public Health for his thesis and work concerning, "The Epidemiology of Leptospiral Infections." Established at Tulane University in 1929 and named for J. C. Geiger, M.D., director of public health in San Francisco, the medal is presented to a graduate student for an acceptable thesis on a public health problem of importance to the South.

ANDREW J. FLECK, M.D.,† has been appointed deputy commissioner in the Rensselaer County (N. Y.) Health Department to serve until September, when he will continue his studies at Albany Law School, in the legal aspects of public health administration.

ANN FOX,† secretary of the Educational Committee, Illinois State Medical Society, has received the Mate E. Palmer Award of Merit of the Illinois Woman's Press Association for winning first place in the publicity section in the annual contest of the association. The award was given for the Health Talk titled "Try Laughing," one in a weekly service to the press of Illinois.

EVAN C. HORNING, Ph.D., presently associate professor of chemistry at the University of Pennsylvania, has been appointed to head a new section on the Chemistry of Natural Products as a part of the research laboratories of the National Heart Institute, U. S. Public Health Service.

EDITH GEREAU JACKSON was recently appointed home demonstration agent with the Agricultural Experiment Station at Christiansted, St. Croix, Virgin Islands. She had previously served as health coördinator for St. Thomas and St. John, the other islands in the Virgin group, and as food service field supervisor of the island's school lunch program.

CORNELIUS B. KELLY, JR.,† formerly with the New York State Department of Health's Division of Laboratories and Research, and the New York State Conservation Department's Bureau of Marine Fisheries, has been commissioned Pharmacist (R) in the Commissioned Corps of the U. S. Public Health Service and detailed to the Service's Environmental Health Center in Woods Hole, Mass.

CATHERINE KESLING,† recently bacteriologist with the East Orange (N. J.) Health Department, joined the staff of the Anchorage, Alaska Study Unit in Bacteriology and Human Parasitology of the U. S. Public Health Service, which is under the direction of WILLIAM GAUB, Ph.D.*

MR. AND MRS. JOHN KROG of Oslo, Norway, who have come to this country under the Exchange Visitors Program of the State Department, have joined the Study Unit in Physiology and Experimental Biology, U. S. Public Health Service, at its field station in Anchorage, Alaska, to assist in field and laboratory investigations of metabolic changes in Arctic and sub-Arctic birds and mammals under the direction of DR. LAURENCE IRVING.

JOSEPH L. LILIENTHAL, JR., M.D., has been appointed professor of environmental medicine in the Johns Hopkins School of Hygiene and Public Health. The new department "will combine for the first time research comparing individual illness and community disease."

GERALD C. MANLEY, M.D., has been appointed a member of the New York State Public Health Council, succeeding WALTER A. LEONARD, M.D.,* (N. Y.) who has been a member since 1932. Dr. Manley is Health Officer of the Town of Leicester and chairman of the Livingston County Public Health Committee.

YUKIHARU MIKI, M.D.,† director of the Bureau of Public Sanitation in Japan's Ministry of Public Health and Welfare and his country's delegate to the Third World Health Assembly which met in Geneva in May, recently visited the American Public Health

* Fellow A.P.H.A.
† Member A.P.H.A.

Association offices with MASUO TAKABE, M.D., his assistant tuberculosis control officer, now completing work for an M.P.H. degree at the Harvard School of Public Health.

G. F. MOENCH, M.D.,* for the past year Health Officer of Defiance County, Ohio, during which time it joined with Fulton County to make a bi-county unit, has been made director of the division of local health services, New Jersey State Health Department, thus completing the placement of division heads under a reorganization authorized by the New Jersey legislature in 1949.

HERBERT MORGAN, M.D.,† recently professor of epidemiology, University of Michigan, has been appointed professor of bacteriology and chairman of the department of bacteriology and preventive medicine, University of Rochester, School of Medicine and Dentistry, New York.

PHILIP E. NELBACH,† recently executive director of United Yugoslav Relief Fund of America, has joined the staff of the National Health Council, as associate director.

SIDNEY OLANSKY, M.D., formerly medical officer in charge of research, Gallinger Hospital Rapid Treatment Center, Washington, D. C., has been appointed director of the Public Health Service's Venereal Disease Research Laboratory in Chamblee, Ga., succeeding R. C. ARNOLD, M.D.†

BERTHA PARKHURST,† formerly with the Arizona State Health Department, has joined the staff of the Oregon State Board of Health as health education consultant.

CLIFTON T. PERKINS, M.D., who recently resigned after 12 years as head of the Massachusetts Department of Mental Health, is now head of the Maryland Department of Mental Hygiene, succeeding GEORGE H. PRESTON, M.D.

HARRIET I. PICKENS,† formerly executive secretary of the Harlem Council on Social Hygiene, is the executive secretary of the Harlem Tuberculosis and Health Committee of the New York Tuberculosis and Health Association, succeeding ANNA J. WEIR.†

MAURICE C. PINCOFFS, M.D., has been made head of the new 64 member committee appointed by the Governor of Maryland to coördinate all phases of Maryland's public health program.

EDWARD C. PREST has resigned as assistant director of the Albany County (N. Y.) Tuberculosis and Public Health Association to become assistant executive secretary of the Los Angeles County Tuberculosis and Health Association, Calif.

RUFUS S. REEVES, M.D.,† director of the Philadelphia Department of Public Health, received an honorary degree of Doctor of Medical Science at the annual graduation of Hahnemann Medical College, in recognition of his many years' service to the profession and the public, and for his advancement of medical education.

ROBERT G. RICE, M.D.,† formerly director of Maternal and Child Health, Halifax, (Nova Scotia) Health Department, has been appointed director of Maternal and Child Health, Masachusetts Department of Public Health, to succeed FLORENCE L. MCKAY, M.D.,† retired.

BURT R. RICKARDS * has announced the opening of the office of Rickards and Cleveland, Consultants in Public Health, with interest in food and milk, water and sewage problems and concerned with investigations, surveys, administration and development programs, with offices at 381 State Street, Albany 6, N. Y.

ELIZABETH KIRK ROSE, M.D., associate pediatrician and assistant professor in pediatrics, University of Pennsylvania, School of Medicine, recently became chief of the Division of Child Hygiene, Philadelphia Department of Public Health.

ADELE C. SHEPARD, M.D., M.P.H.,† formerly with the Chicago Department of Health, was recently appointed chief of the Venereal Disease Control Program, New Jersey State Department of Health.

ROBERT M. STECHER, M.D.,† a member of the medical staff at Cleveland City Hospital since 1929, has been elected president of Cleveland Health Museum, succeeding LESTER TAYLOR, M.D., deceased.

GENEVA STEPHENSON is public relations consultant of the National Organization for Public Health Nursing, succeeding HELEN NELSON, resigned to join the staff of N. W. Ayer & Son in the New York City office.

WALTER STURROCK, who has been associated with the General Electric Company since 1916 in the development and application of improved lighting standards, was elected president of the Illuminating Engineering Society to take office October 1.

R. D. THOMPSON, M.D., past president of the National Tuberculosis Association, has resigned as medical director of La Vina Sanatorium, La Vina, Calif., to become first medical director of Florida's new state sanatorium at Lantana. Dr. Thompson is succeeded by WILLIAM H. OATWAY, JR., M.D., most recently research resident at Barlow Sanatorium, Los Angeles.

FRED O. TONNEY, M.D.,* health officer of

Shelby-Effingham Counties (Ill.), resigned on May 31 to become health officer of Cameron County, Texas, with headquarters in San Benito. He succeeds CLAUDE S. SELBY, M.D.,† who some months ago became health officer of the newly organized San Patricio County Health Department in Texas.

JANET F. WALKER,* formerly director, public health nursing program, School of Nursing Education, Catholic University of America, Washington, D. C., has resigned to become associate professor, School of Nursing, University of California, Los Angeles.

E. RICHARD WEINERMAN, M.D.,† visiting associate professor of Medical Economics and head of the Division of Medical Care Administration, University of California School of Public Health, has been awarded a World Health Organization Fellowship to study teaching and research programs in the preventive and social aspects of medicine being carried out by various European universities —teaching centers in London, Oxford, Manchester, Birmingham, Cambridge, Edinburgh, Stockholm, Brussels, Paris, Nancy, Zurich, among others.

MILTON C. WINTERNITZ, M.D., professor of pathology and formerly dean of the Yale School of Medicine, retired on June 30 after 33 years on the Yale faculty. He continues as director of the Board of Scientific Advisers of the Jane Coffin Childs Memorial Fund for Medical Research, with offices in the Sterling Hall of Medicine.

MARGARET WOLCOTT, R.N.,† for the past 6 years director of nursing services of the Cortland County (N. Y.) Health Department has resigned to become school nurse in the Corning School system.

DEATHS

FLORENCE BELL, former executive secretary of the Atlanta, Ga., Tuberculosis Association, died May 10.

CHARLES F. BOLDUAN, M.D.,* director of the Bureau of Health Education of the New York City Health Department from 1928 until his retirement in 1943 and medical adviser to the Peace Laboratories, since his retirement, died July 4 at the age of 77 (Statistics Section).

B. J. BRANTON, M.D., president of the Minnesota Public Health Association died on May 9.

JUAN A. COSCULLUELA,† President of the Cuban Society of Public Health and professor of sanitary engineering of the University of Havana, died May 17th (Engineering Section).

M. J. CUEN, M.D.,† instructor, Department of Preventive Medicine, University of Texas (Industrial Hygiene Section).

A. CLINTON DECKER, C.E.,* sanitary engineer, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala. (Engineering Section).

MARY GOVER, D.Sc.,† statistician, U. S. Public Health Service, Bethesda, Md., died recently (Statistics Section).

CLAUDE HERVEY LAVINDER, M.D., medical director, U. S. Public Health Service, retired, died April 22 at the age of 77.

CLYDE POTTS,† consulting sanitary engineer of Clyde Potts Associates, New York City, and former President of the New Jersey State Board of Health, died May 19, following a heart attack. Mr. Potts joined the Association in 1907 and received his 40 year membership certificate in 1947 (Engineering Section).

JOHN E. RANSOM,† with the Georgia Department of Public Health as director of a survey of state hospitals, died May 13 as a result of an automobile accident (Unaffiliated).

F. DEWITT SMITH, M.D.,† Health Officer, Guilford, Conn. (Health Officers Section).

WILLIAM F. SNOW, M.D.,* General Director Emeritus and chairman of the Board of the American Social Hygiene Association and President of the International Union against the Venereal Diseases, died June 12 (Public Health Education Section).

FRED M. STEIN, a former member of the Board of Directors, National Tuberculosis Association and of the New York Tuberculosis and Health Association, died recently at the age of 76.

HERBERT WISE, M.D.,† Health Officer since 1947 of District 4, including Calhoun, Gilmer, Lewis, and Upshur Counties in West Virginia, died May 9 after a long illness (Health Officers Section).

CHESTER W. YOUNG,† senior social science analyst, serving as International Consultant in Caribbean Area, died recently (Statistics Section).

CONFERENCES AND DATES

American Public Health Association. Headquarters, Kiel Auditorium, St. Louis, Mo. October 30–November 3.

Coming in August, September, and October:

American Congress of Physical Medicine. Hotel Statler, Boston, Mass. August 28–September 1.

* Fellow A.P.H.A.
† Member A.P.H.A.

American Hospital Association. Atlantic City, N. J. September 18–21.

American Occupational Therapy Association. Glenwood Springs, Colo. October 16–20.

American Water Works Association:

- Alabama-Mississippi Section. Mobile, Ala. October 11–13.
- California Section. San Diego. October 24–27.
- Iowa Section. Des Moines. October 26–27.
- Michigan Section. Detroit. October 25–27.
- Minnesota Section. St. Paul. September 6–8.
- Missouri Section. St. Louis. October 1–3.
- New Jersey Section. Atlantic City. October 26–28.
- New York Section. Saranac. September 7–8.
- Ohio Section. Columbus. September 28–29.
- Pennsylvania Section. Pittsburgh. October 18–20.
- Rocky Mountain Section. Santa Fe, N. M. September 27–29.
- Southeastern Section. Charleston, S. C. October 23–25.
- Southwest Section. New Orleans, La. October 15–18.
- West Virginia Section. Huntington. September 13–14.
- Wisconsin Section. Oshkosh. September 19–21.

First International Congress of Diseases of the Chest. Carlo Forlanini Institute, Rome, Italy. September 17–22.

First International Heart Congress. Paris, France. September 3–9.

Florida Public Health Association. Soreno Hotel, St. Petersburg. October 5–7.

International Congress of Housing and Town Planning. Amsterdam, Holland. August 27–September 2.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis. September 25–26.

National Association of Housing Officials. Hotel Statler, Detroit, Mich. October 16–19.

- Pacific-Northwest Regional. Gaffney's Lake Wilderness Resort, Seattle, Wash. September 28–29.

National Association of Sanitarians. St. Louis, Mo. August 23–25.

National Conference on Family Relations. University of Denver, Denver, Colo. September 5–7.

National Recreation Association. Hotel Statler, Cleveland, Ohio. October 2–6.

National Society for Crippled Children and Adults. Stevens Hotel, Chicago, Ill. October 26–28.

National Urban League. Grand Rapids, Mich. September 3–8.

New York State Association of Milk and Food Sanitarians. Syracuse, N. Y. October 2–4.

North Carolina Public Health Association. Robert E. Lee Hotel, Winston-Salem. September 7–9.

Pennsylvania Public Health Association. Yorktown Hotel, York, Pa. October 19.

38th National Safety Congress & Exposition. Stevens Hotel, Chicago, Ill. October 16–20.

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